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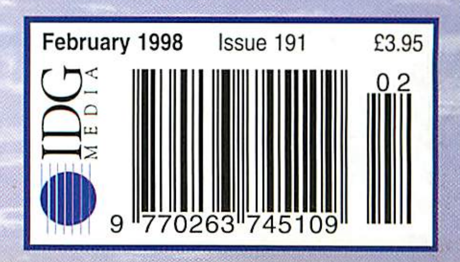
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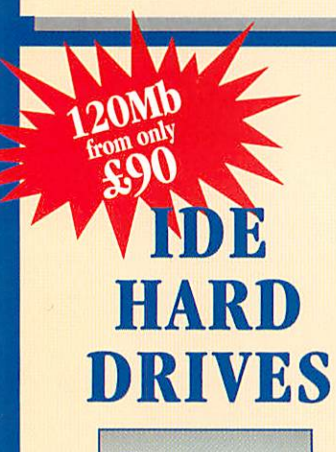
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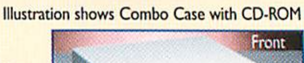
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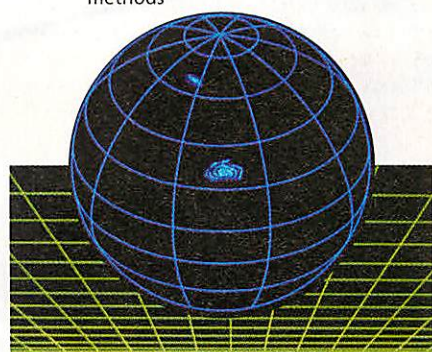
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We continue our series on Advanced Artworks and 3D games programming, the second in our two part series on the Bootfile. Plus reviews of Teletext+ and the Cumana SCSI card

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DESIGNED FOR EDUCATION

news



Acorn's New Year message

This new year should prove to be a rather more exciting year than 1997 for Acorn. The company have a new marketing supremo and the Risc PC II should be with us by the midway stage of the year. The age-old challenge by Acorn's management to prove that they can be competent, let alone successful, at marketing is to be taken up by Graham Dodgson, Acorn's new senior vice president sales and marketing.

Dodgson was deliberately recruited from the consumer electronics industry rather than the computer industry in order to give Acorn a fresh point of view. Dodgson comes from the company which brought you the VideoPlus system for programming timed TV recordings on video recorders. VideoPlus has become very successful through partnerships with the newspaper and magazine TV listings industry and the consumer electronics giants who license the VideoPlus code for their video recorder products. Acorn's future is in technology licensing as well.



Acorn User put it to Dodgson that, traditionally, new senior management recruits destined to head the Acorn marketing department would soon find they had inherited a difficult 'hot seat'. Acorn fans generally have a love/hate affair with Acorn; loving the technology and mocking the marketing produced to sell the technology. Both Dodgson and Acorn's president, David Lee – who was also present, agreed with this point of view: "If I can get our marketing people to match even 25 per cent of what our technology people are achieving, I will be very happy," Dodgson answered.

Dodgson underlines the importance of marketing by warning that technology alone is not enough for commercial success these days. "We cannot be a market leader through unique technology alone, but we can be a market leader." Priorities include improving marketing focus and recruiting more large strategic partners, says Dodgson.

However, Dodgson isn't ignoring the side of Acorn's product tradition which is much closer to home for most *Acorn User* readers. One of Dodgson's initial tasks is to oversee the launch of the Risc PC II, code-named *Phoebe*. More on that a little later. Some rather surprising, but welcome, news from Dodgson is that during his first meeting with the Acorn press he indicated that he was confident that Acorn could reverse the company's long decline in the consumer market.

This boosts the hard work of Chris Cox and Kerri Davies who have been successful in sustaining and stimulating Acorn's consumer business. Cox heads up Acorn's Products business, a term Dodgson dislikes because everything Acorn make is a product and it's likely that Cox will get a more meaningful name for his division in the near future. Cox and Davies have successfully slowed the gradual erosion of consumer customer support even though the current product range is beginning to show its age. Dodgson looks like taking special in interest in boosting their efforts to expand the user base of Acorn computers among home, enthusiast and even some business users.

Free e-mail – for life?

The Swedish government have just done it, so a UK company have followed suit. Digital Mail, apparently the first company to give away free personal phone numbers, have announced that all UK residents are eligible for a free e-mail address from them for life. This mirrors an initiative by the Swedish government to provide anyone over the age of six with their own electronic message mailbox.

Everyone can have this new e-mail facility – even if they don't own a computer or have access to the Internet. Digital Mail have followed the lead with their service and there are no PC software-specific online options, so as long as you have a conventional Internet mailbox, like Argonet for example, or a standard Web browser, the free service is available to Acorn users.

Digital Mail will deliver users messages to any fax machine, digital cellular phone, by voice-mail, to any Internet connected computer to which the user may have occasional access, or even by post! As the service is both free to sign up and rent free, it's an attractive and risk-free way for users to make their first steps onto the Internet.

Of course, there is no such thing as a free lunch and service is actually funded by making charges for some delivery destinations, like the postal service, for example although, in line with the charging model for personal phone numbers, forwarding to an Internet connected computer is free of charge. The free portions of the service, including e-mail to e-mail and Web access to e-mail, are free and funded by advertising.

Robert Darwin, managing director of Digital Mail Ltd and a direct descendant of *the* Charles Darwin, explained: "The last few years have seen a proliferation of e-mail addresses and the expectation that people will be contactable over the Internet; However, less than one per cent of the UK population is, so our product is for the other 99 per cent. Digital Mail are offering a solution that not only gives everyone access to this new communications medium, but offers them a powerful choice of computer-free delivery methods."

If you like the free service you can also sign up to other services which can enable people to send you faxes or voice mail which can be accessed via e-mail or the Web if required. The system can also link up to your mobile phone via SMS messag-



ing and for people on the move there will soon be a message text to digitised speech service and there will be operator services as well. The telephone and Internet networks seem to be evolving pretty fast, as Mr Darwin might choose to say.

Digital Mail Ltd, tel: 0171-919-9900, fax: 0171-919-9901, e-mail: info@digital-mail.com, Web: www.digitalmail.com



Phoebe exposed

The Acorn press were recently given the opportunity to get a very close look at the Risc PC II *Phoebe* prototype. There is a distinct possibility that *Project Phoebe* will successfully conclude as early as May this year when it is hoped the first production Risc PC IIs will ship. *Phoebe* highlights include:

- The original Risc PCs innovative all-plastic modular case gives way to an industry-standard metal case in order to accommodate both Acorn Podules as well as industry standard PCI expansion cards, of which there will be three of each and to pass more stringent radio emission limits.
- Although the new case is "industry standard", its design enables motherboard removal and replacement with the minimum of hassle from flying leads and other connectors.
- The Phoebe prototype shown at Acorn World last November had an anonymous looking fascia design. Chris Cox reassures us that a much more striking fascia has been commissioned for the production version.
- Maximum VRAM is increased to at least 4Mb, and is situated on the main motherboard. This will enable 24-bit colour screen modes as high as 1280 by 1024 pixels in resolution. The new video bus arrangement will be much more efficient than before and will hopefully match new PC developments, like AGP (Advanced Graphics Port), which is an enhanced extension of the PCI bus for video graphic cards.
- Synchronous DRAM (SDRAM) memory has been adopted for the new machine. This is good news because it combines excellent performance and good availability because it is a popular RAM type for new PCs. The capacity limit will be much higher than before too.
- The new StrongARM processor card is much smaller than its predecessor because logic to step voltage between 5V and 3V is no longer necessary – it's all 3V.
- A special block of super-fast SRAM will be used to hold critical modules to allow even faster processing.
- All the PC-specific sections of the new design, including the PCI slots, are located separately on a compact board which is situated at 90 degrees to the main board. This part of the prototype wasn't fitted to the example we were shown, but it is likely to accept Socket 7-compatible 'true' Pentium processors, ensuring a much more acceptable level of PC performance. There is no reason why Pentium II versions of the board could not be produced, should Acorn warrant the necessary investment in design.
- A much faster central bus system will mean most of the bottlenecks, like memory and hard disk access, experienced by power users of the old Risc PC will be fixed.
- Acorn have had to abandon the proposed idea of offering a board replacement to upgrade MkI Risc PCs to MkII specification. The complexity of the PCI bus, RFI emissions and the new processor card arrangements made the idea unworkable, unfortunately.

It's likely that 233MHz StrongARMs will be fitted to initial Risc PC IIs shipped, however, Digital is already mass-producing 533MHz Alpha CPUs, with 800MHz expected some time this year and Alpha fabrication technology is the same as that for StrongARM. All Acorn would say was that they were unable to comment because of non-disclosure agreements, though there was no denial that faster StrongARMs are on the way.

Monitoring Nokia

To many, a monitor is just a monitor. They're big heavy things which take up all the room on your desk and come in 14, 15, 17 and 21 inch sizes.

Nokia always like being a bit difficult and they have just launched a couple of new monitors which certainly can't simply be called yet another monitor. First, there is the Nokia 446XPro, which is one of the new 19 inch class of monitors. These are usefully larger than 17 inch units, but much more affordable than 21 inch models.

The £599 446XPro has a highest in class refresh rate of 107KHz, a FST screen and a dot pitch of 0.26mm. Moiré pattern cancellation technology is featured along with dynamic focusing. The unit is also designed to take up as little desktop space as possible, especially depth.

However, the 446XPro can't match the minuscule dimensions of the second new Nokia monitor – the 300Xa.

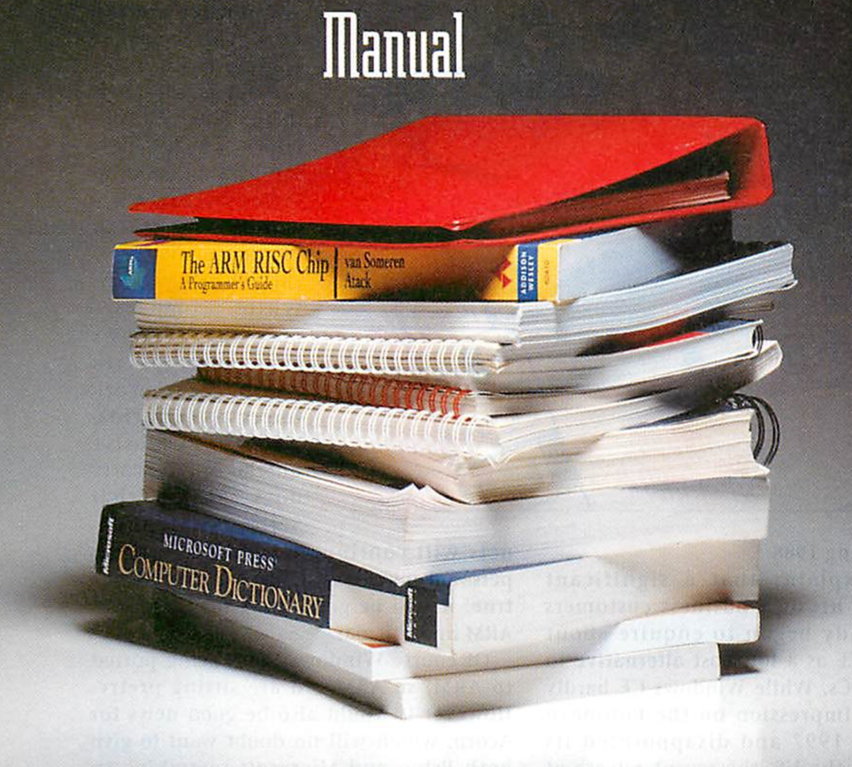


This is a Super TFT flat panel screen measuring 13.3 inches but because it's perfectly flat, is comparable to a conventional 15 inch monitor in viewing size.

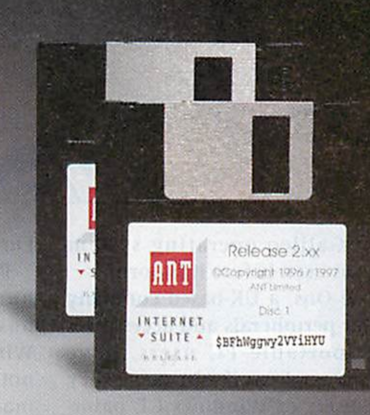
Super TFT (thin film transistor) is a second-generation TFT technology which eliminates phantom images and viewing angle picture degradation. A contrast ratio of 100:1 is matched by a 16 million colour display capability. Unfortunately, LCD prices are taking their time in becoming more affordable and though £1599 is actually quite good value in relative terms for a 13 inch LCD monitor, it's still as much as six times the price of a conventional 15 inch monitor.

There are two ways to get on the Internet:

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TCP/IP, PPP, SLIP, SMTP, POP2, POP3, IMAP, MIME, UUencode, FTP, HTTP, HTML 3.2, NNTP, GIF, JPEG, Telnet, Gopher and more.

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For further details, get motoring and contact ANT at PO Box 300, Cambridge, CB1 2EG, or visit our Web site at http://www.ant.co.uk

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The ANT Internet Suite is £99 + VAT. If you use another commercial Internet product for RISC OS we'd like you to try the Suite for £49 (inclusive) plus proof of ownership. Upgrades from release I are £10 (inclusive).

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Acorn and Psion under threat?

Although Microsoft, by most accounts, got it wrong in 1997 with their cut-down version of Windows for palmtop computers, Windows CE (Consumer Electronics) is back with a vengeance this year in Version 2 guise. The improvements are substantial, though one of its main weaknesses – a Windows 95 desktop user interface – remains. So, will Windows CE 2 be the scourge of Psion, who have had a generally successful, if accident prone (read bug-ridden), second half of 1997 with their ARM-powered Series 5 palmtop? A supplementary question might also be – are Microsoft going to force the demise of Acorn's own Galileo operating system project, perhaps even before it is born?



Portable Add-Ons, a UK-based company best known for peripherals and accessories tailored for portable PC users, have decided to invest heavily in accessory products for users of Windows CE palmtop computers. These products range from a palmtop carry case with built-in auxiliary power supply to a family of low power consumption PCMCIA cards. Portable Add-Ons' managing director, Nigel Parry, told *Acorn User* that he is confident Windows CE will take off in Europe during 1988.

Parry explains that a significant number of his own business customers have already begun to enquire about Windows CE as a low cost alternative to notebook PCs. While Windows CE hardly made any impression on the European market in 1997 and disappointed its analysts in the US, the recent release of version 2.0 from Microsoft along with second generation hardware has convinced Parry that 1998 will be a year of opportunity for CE.

Parry did reveal that he admires Psion's palmtop technology, which is not compatible with Windows CE and while he feels CE will win in the corporate market, in which Portable Add-Ons is particularly strong, he remains to be convinced that Psion will be able to compete successfully against Windows CE where individuals choose their own solution. Psion appear to share Parry's point of view; the latest flurry of software releases from Psion feature a high proportion of non-business titles, including games like Monopoly and arcade titles, language applications from Collins and Berlitz as well as a new route-finding package called EnRoute.

Psion remain the European market leaders in palmtop computers, although the US Robotics Palm Pilot – which is now the leading palmtop seller in the US – could threaten Psion's position in the shorter term. While companies may buy Windows CE palmtops to equip their work forces as an alternative to expensive notebook PCs, Parry does think that Series 5-style products will continue to sell very well as personal purchases. If Parry's views come true, it will be good news for Psion and ARM in particular.

Of course Windows CE is being ported to ARM, so ARM Ltd are sitting pretty. However it would also be good news for Acorn, which will no doubt want to give both Psion and Microsoft something to think about when Galileo is ready to go.



Mobile phones ARMed

If the idea of an ARM in your computer as well as in your phone sounds attractive, you might want to have a look at the latest pair of digital mobile phones from Panasonic. Both the new G450 and G600 models, which should ship from February, contain Texas Instrument custom chips incorporating ARM Thumb processor cores.

The G450 makes full use of the ARM Thumb's power thrift to provide 210 minutes of talk time or up to 85 hours (three and a half days) stand by time using a standard battery. The more expensive G600 has more features but a shorter talk time. Last month, VLSI Technology announced another digital mobile phone chip set which places ARM firmly on the centre-stage of mobile phone technology developments. Acorn's prototype real-time operating system, Galileo, is being designed with applications like mobile phones in mind.



news

NCs, Net PCs, make no impression?



An annual report commissioned by the PC company, AST, indicates that businesses aren't very interested in NCs and often don't know what the difference is between an NC and the Wintel rival, the NetPC. The 1997 AST IT Barometer Report revealed that 47 per cent of those responsible for corporate IT purchasing believe it will be at least two years before NCs or NetPCs will make a mark on the UK market. Eight percent remain unconvinced that either NCs or NetPCs will ever become fully marketable products.

Only 14 percent of the survey indicated that they would consider evaluating NCs or NetPCs and 72 per cent confirmed that they would not for the time being at least. "The findings of the research are hardly surprising," said AST's marketing director for the UK and Ireland. He explained: "There has been a lot of talk over the last year about the NetPC and NC and this has led to some confusion over business benefits being offered. From the research, it is obvious that people are adopting a 'wait and see' attitude before investing in these new technologies. The only good news from the report from Acorn's point of view is that NCs are marginally rated as preferable to NetPCs by those in the survey who knew the difference between the two platforms.

AMD PC Card fix from CJE

CJE Micros have asked us to publicise the following message to users of PC Cards fitted with AMD 586 processors. If you have been having problems with this type of card, read on:

"It has come to our attention that many users of our card, are experiencing problems, which can be easily solved. One of the most common problems which we have to help with is when on boot up of the card, the user gets a scrolling green screen with the error 'No boot Device – retrying' being continuously printed.

"This caused by a version of PCSleep which is not compatible with the AMD processor. Users can solve this by deleting PCSleep from the !Boot.Choices.Boot.Predesk directory or by upgrading to an AMD compatible version available to download from our web site. In each case it is necessary to switch the whole system off before the PC Card will reboot successfully, a shutdown and restart will not reboot the PC Card."

The upgrade is available from the Web at: http://www.cje.co.uk/ftp/pub/pccard/amdpcsleep.arc or you can contact CJE's technical help department by e-mail at: support@cje.co.uk

Mobile phone messaging

Psion have announced Message Express, a software package for sending and receiving short pager-like messages using a digital mobile phone in conjunction with a Psion palmtop or the Acorn Pocket Book equivalent. Message Express enables a user to compose and view messages up to 160 characters in length sent and received via SMS (Short Message Service) text messages over either the Vodafone, Cellnet or Orange mobile phone networks.

The 121 network is trialing SMS too. Messages, costing as little as under 10p each, can be sent throughout the world where SMS is available, for example in Europe, South Asia and Australia. Messages are received almost instantaneously, whether the recipient is in the same office or at the other side of the world, and all at the same low cost.

"There are obvious advantages for the busy mobile phone user who doesn't want an important meeting disturbed by a voice call. Sending short messages is simpler, cheaper and less intrusive than calling," said Kevin Vaughan Smith, Corporate Solutions Director for Psion UK, "Being able to connect your Psion to the two leading brands of mobile phone and choose from three international phone networks is part of the customer-led communications strategy developed at Psion. Message Express makes the set up and connection very easy and straight forward," he continued.

The Message Express consists of the Message Express software (supplied on Solid State Disk), Page-mail software (on 3.5" disc) and cable to connect the Psion to the appropriate Ericsson or Nokia mobile phone.

Judge gives mixed message



Microsoft may be the software industry steamroller (though IBM are technically even bigger as a software producer), but they are being challenged from all sides by organisations fearing Microsoft's dominance.

Recently, Microsoft's legal eagles found both cheer and disappointment in the pronouncements of a US District Court judge. The judge was ruling on a complaint from the US Justice Department which objected to Microsoft's stipulation that its Internet Explorer browser software be bundled free of charge with Windows 95.

Alleged to be anti-competitive and in breach of a previous anti-trust ruling in 1995, Microsoft attracted the threat of a million dollar a week fine from the Justice Department if it failed to change its ways. US District Court judge Jackson moderated the tone of the complaint, shelving the punitive threats but temporarily ordered Microsoft from requiring Windows 95 licensees to bundle Internet Explorer until the whole issue could be further studied.

If the final judgement goes against Microsoft, plans for Windows 98, which presents the Internet Explorer 4 as an optional user interface, will have to be dumped. This would be a major blow to Microsoft and a *boost to the* smaller players in the industry, like Acorn!



ArgoSphere launched officially

As we reported late last year, Argo Interactive have now officially launched their educational website, ArgoSphere (www.argosphere.net). The brainchild of Argo's marketing manager, Ian Goodall, ArgoSphere was developed by Mike Matson, a long time educational software developer in the Acorn world. ArgoSphere is highly interactive and also a secure site on the Internet, making it ideal for young children to use.

Typically, Web sites are repositories of information to be searched and read, but ArgoSphere is different. Children are asked to interact with objects on the screen. One example given is that of Llama World. Children can interact with talking llamas during an exploratory journey. Then there is 'Pooh Country', where you can correct mis-spelled signs put up by Pooh Bear and some of the other Ashdown Forest characters.

'The Visitor' is another interactive adventure which depicts the arrival of an alien who is amused by the seemingly odd behaviour of humans. A glossary is available to expand children's vocabulary. Older children can enter the world of 'A Dragon Unleashed' – where you can mingle with anti-road protesters, play with magic and even time travel. Mike Matson explained:

"Many of the educational Web sites available today are either based purely on games or overloaded with facts and figures. ArgoSphere aims to redress this balance. Through combining education with interactive exercises, ArgoSphere will constantly challenge children rather than rely on the usual search and read exercises offered by other sites." Oldies aren't left out either. For them, there is a VIP Lounge where parents and teachers can get involved too.



Serious price cuts

Serious Statistical Software is making substantial price reductions for some of their established products as well as simplifying their price list structure. From 1 January 1998, prices for Education customers are:

Grade	Single Copy	Site Licence (up to 40 copies)
1stL	£49	£149
1stJr	£79	£249
1st	£159	£349

The prices show modest reductions for single use licences and 1stL site licences. However, more drastic cuts have been applied to site licences for 1st and 1stJr. For non-educational use, somewhat higher prices than those given above will apply. Details are available from SSS on the Web at http://www.serious-stats.co.uk

New products/upgrades

Product	New features/product details	Price	Contact
Encode Desktop Manager	• Desktop management solution implementing a multi-user environment for networked or standalone machines • Data and configuration security can be implemented simply and safely • No programming experience is required • Plus many other features	£25	Grasshopper Software 6 Truro Close, Ease Leake, Loughborough, LE12 6HB E-mail: benjamin.ollivere@st-johns.ox.ac.uk WWW: http://users.ox.ac.uk/#sjoh0576
'Surf at speed' modem pack	• Incorporates the 56Kflex external voice/fax/data modem and Voyager Internet access software together with 3 months free online to ArgoNet's Premier Internet Service	£149.95 (inc VAT)	Argo Interactive Group plc Tel: 01243 815815

Hidden technology resentment

One might be forgiven for assuming that most people who read computer magazines, including *Acorn User*, are in favour of technology and its impact on society. However, according to a recent MORI poll, the British public is becoming increasingly concerned about the role of technology in society.

The proportion of the public who feel that technology is destroying our lives has grown substantially in the last few years, according to MORI. Rather than making work more interesting and easier, many feel technology makes their work more stressful and, especially in terms of time pressure. At the same time the sales of computers, fax machines and mobile phones have never been higher, suggesting a techno-social divide in the country.

Have you got news for us?

Acorn companies often seem to be publicity shy, which makes compiling the news more difficult than it could be. If you have a product or service you are proud about, let the world know – through these pages. Contact Ian Burley via e-mail at: aunews@idg.co.uk or send press releases to the usual address.

Shows 1998 update

Acorn Southwest Show
Saturday 7 February
The Webbington Hotel, Loxton, North Somerset
10am – 5pm
Further details contact 01707 390410, e-mail: acornshow@argonet.co.uk

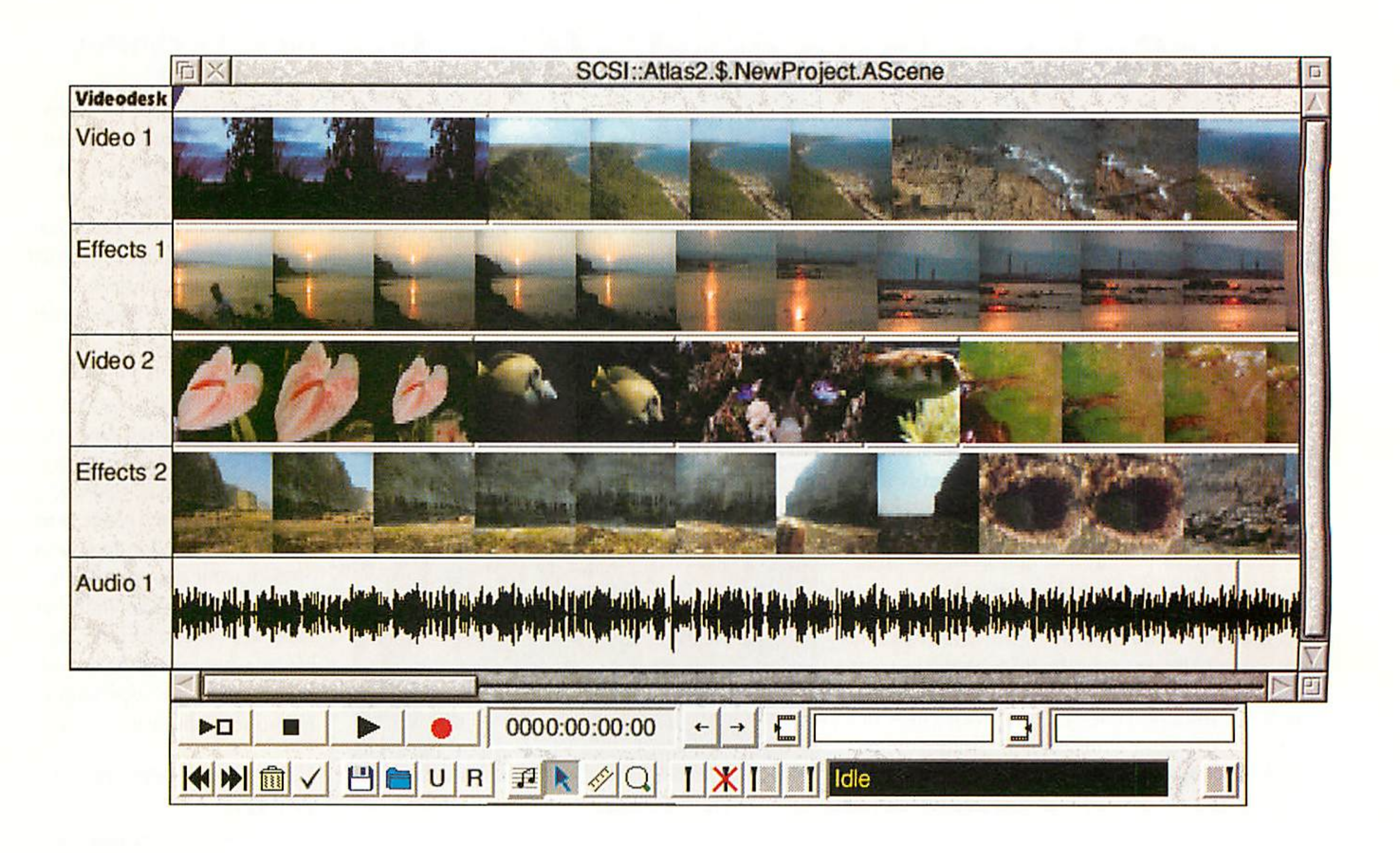
The ARM Club show
Sunday 1 March
Merton Court School, Sidcup, Kent
10am – 4pm
Further details contact 07010 709849, e-mail: info@armclub.org.uk

Contacting me

You can contact the news page by writing to me Ian Burley at the usual Acorn User address or by e-mail: aunews@idg.co.uk

Videodesk

Full-frame, True-Colour, Non-Linear Video Editing System.



Videodesk

- Frame accurate editing.
- Separate audio and video tracks.
- Instant playback of edits.
- Effects include mix, fade and wipes etc.
- Multi-level undo and redo.
- User selectable quality factor up to S-VHS*.
- Composite and S-Video inputs and outputs.
- Resolution of up to 768 pixels x 576 lines.
- 50 fields per second capture and playback.
- 24 bit colour range.
- 16 bit stereo inputs and outputs.
- Audio sampling up to CD and DAT rates.
- Direct-to-disc recording.
- Built-in hardware Moving JPEG (MJPEG) Codec.
- Contrast, Brightness and Saturation adjustment.

Videodesk is a significant advance in video editing for Acorn machines. It allows full-size, full-colour and full-motion video to be compressed to disc in real-time using MJPEG hardware. The compressed data can be edited frame accurately and output back to video. Unlike tape-based editing systems there is no generation loss or waiting for tapes to rewind.

Complete video editing software is supplied as standard, which is sophisticated, flexible and simple-to-use. Editing is done on a multi-track time-line with separate audio and video tracks. Effects are generated digitally and include mixes, wipes and fades. Sequences of clips can be played back continuously without waiting for them to be assembled into a single file. So there is no waiting to preview an edit and disc space is not wasted. **RiscTV** is supported for real-time desktop display up to full-screen size.

Videodesk is available now direct from Irlam Instruments Ltd.

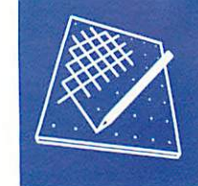


For the Complete Picture...

Irlam Instruments Ltd, Brunel Institute for Bioengineering, Brunel University, Uxbridge, Middlesex, UB8 3PH. Tel/Fax 01895 811401. Email: sales@irlam.co.uk
Website: www.irlam-instruments.co.uk

Please note: Videodesk requires a RISC PC, large fast hard disc and 8Mb RAM minimum. A StrongARM processor is recommended. Check suitability for your computer before ordering. 1 years guarantee. E & OE.
*To obtain good quality video requires storage of around 1.5Mb per second (5.4Gb per hour).





Better your Website piccies

This new year will see many more of you designing your own websites, most of which will feature the odd scanned photo or digital camera shot. While designing a website myself at the end of last year I encountered a number of quality issues which were effectively resolved after a little research and Web browsing.

The two ways of digitising imagery are by taking conventional photographs or more popular nowadays is direct digitisation of the real world using digital cameras. Unless you use professional quality digital cameras costing several thousand pounds the resolution of your digital pics will fall way short of a conventional photographic negative or transparency.

With a CD-ROM drive and the appropriate graphics package, the need for scanning your prints has become unnecessary as many high-street film development bureaux can create PhotoCDs, but currently only for 35mm film, the APS films require a new CD format for which there is no conversion software for RISC OS.

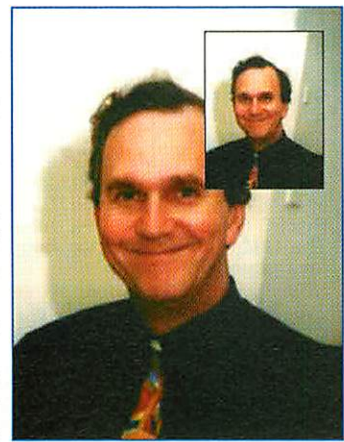


Figure I: 269x352 pixel original shrunk to 100x130 thumbnail (top right) with no enhancements, 40 percent quality JPEG, thumbnail is 2.3k.

Photographic imagery for websites should neither be so large that they take ages to download nor should they be so small as to be unrecognisable. The best sites feature small, sharp and vivid thumbnails with the option for expansion. Unfortunately, shrinking photos down from perhaps 800 pixel across to 100 pixels means that data will be lost. Almost invariably the shrinking process flattens contrast, dilutes colour saturation and blurs the image. There are some easy but under used techniques to improve this.

First, digitise at the highest true resolution (not interpolated resolution) even if your thumbnail or final image is going to be very small. Play around with the brightness and contrast settings and gamma correction. Most washed out photos benefit from about +5 percent brightness, +10 percent contrast, and dark photos improve with a lift in gamma. To warm up indoor lighting, especially for faces and flesh tones, gently upping the red component of the gamma curve can greatly enhance the image.

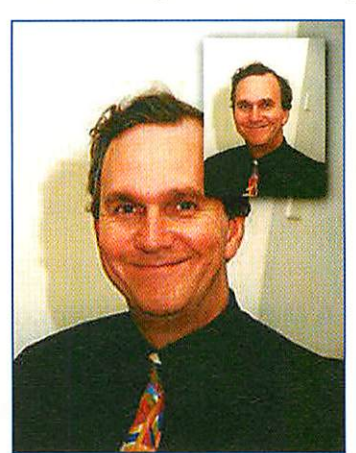


Figure II: Same image with all enhancements described above, 75 percent quality optimised JPEG, thumbnail is 3.8k in size.

That done, a great tip is to sharpen the image before resizing it. ChangeFSI features a function called pre-sharpening but other packages have this as an effect filter completely separate from the resizing window. Crop the area you now wish to resize and shrink with dithering or bicubic interpolation enabled. Once shrunk, the best filter to improve the sharpness of the bitmap is Unsharp Mask.

Photodesk, just like any industry standard bitmap editor, has this filter which for images reduced by five times or more often works best at around 75 percent strength with a pixel radius of one. Failing that, try a weak standard sharpen, it often helps.

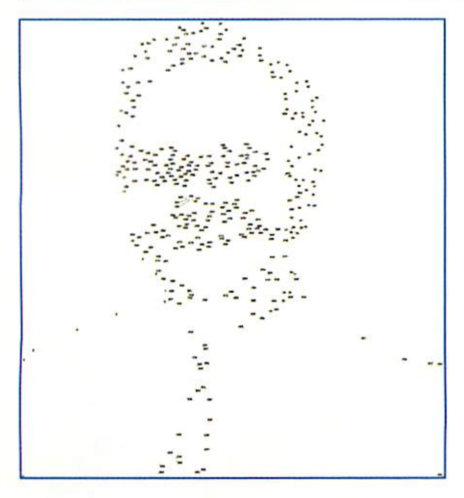
Post-production enhancements that can really boost the appearance of a simple picture include embossed or drop shadow borders.

JPEG remains the compression algorithm of choice for photos. Some insist that a quality setting of 50 percent or less is best because of the small file size though for already small images, a quality setting of 70 percent is, in my opinion, ideal. If your system has JPEG optimisation then use it.

Repro Bureaux News

TJ Reproductions have moved premises. Since they started catering for the Acorn platform more than six years ago, TJ Repro's base has been in West Hampstead, London. The new offices are now at the following address; 96a Old Street, London, EC1V 9AY, Tel: 0171 250 0244, Fax: 0171 240 1530.

ArchiGraphics is a completely new company based in Hampshire. They provides a graphics design and printing service also offering web site design. Hopefully we will feature this new enterprise, a friendly company offering competitive rates, in future issues of the graphics page. ArchiGraphics are on 01264 337784.



Picture of the month

This month's pic of the month winner is Ian Wilson from Surrey. Ian (whose mugshot also appears in the article on good web graphics above) produced a dot to dot draw file of his own face.

The original image was posterised and areas flood-filled until only two tones remained. Using Image Outliner (Iota), the duotone bitmap was converted into a vector image with the straight lines only option.

Once the fill colours were removed and the outline colours applied, the dots and numbers could be drawn at the appropriate nodes.

The set of files is available on the *Acorn User* Web Site and is a great idea to try yourself.

Contacting me

You can contact the graphics and DTP page by writing to me, Jack Kreindler, at *Acorn User*, Media House, Adlington Park, Macclesfield SK10 4NP, or by e-mail to augrafix@idg.co.uk.

Showroom open Mon-Sat 10-18.00 hrs **(All prices INCLUDE VAT)** Carriage not included

CD-ROM Drives

Multi-Session, PhotoCD, CD-DA, White & Green Book compatible. SCSI drives require SCSI card withCDFS>2.20
Carriage: a=£2, b=£6, c=£8

New

Internal CD-ROM Drives

Panasonic 24xCD **ATAPI**	£80c
ATAPI Cable & Fitting Kit	£10a

Above drives are compatible with RiscPC Computers with RiscOS 3.60 or greater and all A7000 Computers.

Sony 2x CD **SCSI** 275ms	£80c
Pioneer 12x CD **SCSI** 130ms	£Callc

External CD-ROM Drives

New

Panasonic 24xCD **ATAPI**	£170c
- suitable for Simtec IDE interface	
Sony 2x CD **SCSI** 275ms	£135c
Pioneer 12x CD **SCSI** 130ms	£Callc

TopicART CD £10



This CD-ROM contains over 2000 ClipArt files, each in Draw, ArtWorks & CorelDraw3.0 EPS formats. The CD also includes high quality Replay Movies & other demos. Site Licence is included.

Hard Discs

New

Carr.: a=£2, b=£6, c=£8

NEW!! Simtec IDE Interface £69

New High performance IDE/ATAPI interface for all RiscOS Computers from A3000 to RiscPC (specify when ordering). Supports up to 4 IDE/ATAPI devices including ATAPI CD-ROM Drives.

3½" Hard Drives	IDE	SCSI
IBM 540Mb	-	£150b
Quantum 2.1Gb	£130b	£Callb
Quantum 4Gb	£215b	£Callb
S/g Cheetah AV 4.5Gb	-	£520c
S/g Cheetah AV 9.1Gb	-	£830c

10,000rpm Cheetah drives are very suitable for VideoDesk.

Syquest Removable SCSI Drives

EZ230 Ext Drive	£160c	EZ230Mb Cartr.	£21a
EZ135Mb Cartr.	£20a	270Mb Cartridge	£40a

Hard Disc Interfaces/Accessories

IDE interface	£69b	50-50C SCSI Cble	£12a
Morley Uncached	£100b	25D-50C SCSI Cbl	£12a
Morley Cached	£135b	SCSI2-50C Cable	£18a
Cumana SCSI II	£155b	SCSI2-25D cable	£18a
		50IDC 4-way SCSI	£12a
External case/psu	£90c	50C Terminator	£12a
2nd IDE Drive Kit	£15a	50HPC Terminator	£15a

zip/jaz Drives

New

Now include our RiscOS JazZip tools (£15 if purchased separately)

- zip & jaz Drives work just like hard drives except they are removeable, giving instant access to files
- 100Mb discs for zip & 1Gb discs for jaz drives.
- Data transfer speeds up to 1Mb/s for zip drives & >5.5Mb/s for jaz drives - ideal for backup up.
- Each drive comes with 1 year warr. and a disc.
- SCSI drives require a SCSI card that is suitable for removeable devices.

Internal SCSI zip drive	**£120c**
External SCSI zip drive	**£120c**
External Parallel zip drive	**£120c**
- add £29 for RiscOS Parallel Driv'r	
Single 100Mb zip Cartridge	£13a
Pack of 5 zip Cartridges	£50b
Internal 1Gb jaz drive (3½")	**£240c**
External 1Gb jaz drive	**£320c**
Single 1Gb jaz cartridge	£70a

Carriage: a = £2, b = £6, c = £8, d = £10

JazZip Tools

New

The ultimate utility for SCSI or Parallel Iomega Zip/Jaz Drives

£15a Inc VAT

(free when purchased with a drive)

JazZip provides you with a complete set of RiscOS tools for Jaz/Zip drives which are equivalent to those provided with the PC DOS utilities that are provided with Iomega drives. Requires a driver for parallel use. Features include;

- Password protection of discs using the standard Iomega protection features which are compatible across RiscOS, PC and Mac platforms.
- Lock/Unlock zip/jaz discs without passwords.
- Lock/Unlock zip/jaz discs with passwords.
- Unlock zip/jaz discs until next ejected from drive.
- Low Level format zip/jaz discs.
- Initialise zip/jaz discs for RiscOS.
- Initialise zip/jaz discs for DOS/Windows.
- Unprotect the Tools disc provided with drives to allow them to be reformatted/Initialised for Acorn
- Compatible with IZipFS, Morley, Cumana, VTi, PowerTec SCSI. Other support to be verified.

THE 1997
ACORN USER
AWARDS

This is to certify that

DESKTOP PROJECTS

has won first prize in the

Acorn User reader award category of

BEST DEALER

Steve Turnbull (Editor)

Xmas Offer

Buy a RiscPC or A7000+ between 1st December 1997 & 28th February 1998 and claim one of the following free of charge.

Nintendo 64 games console with Duke Nukem & Lylat Wars games

OR

A Midi Card, MidiWorks Lite, Evolution Midi Keyboard, ESP MidiSynth+ & backplane.

Offer is only open to Clan Members. £15 to join.

RiscOS Computer Systems

1yr warr. **Carriage included on computers.** All machines are single slice. Backplane fitted to 10M RiscPC only.

See adjacent for details of Special Xmas Offers on Computers

233MHz StrongARM now fitted to all RiscPC Computers.

Computer Model with	14" (ADI)	17"(8617)	No Monitor
A7000+ 8MHD1.2Gb	£950	£1290	£810
A7000+ 8MHD1.2Gb+24xCD	£1020	£1360	£890
RiscPC StrongARM 4MHD1.2Gb	£1240	£1580	£1100
RiscPC StrongARM 4MHD1.2Gb+24xCD	£1310	£1650	£1170
RiscPC StrongARM 10MHD1.2Gb	£1540	£1880	£1400
RiscPC StrongARM 10MHD1.2Gb+24xCD	£1610	£1950	£1470

The 10M RiscPC includes Acorn's J233 Internet software pack - (available ~spring 98)

NEW!! RiscPC's are now available with 15" iiyama Monitors

Add £95 to 14" (ADI) prices for iiyama MF-8515G 15" Monitor.

Add £95 to 17" prices for iiyama MT-9017T instead of MF-8617E.

20/20 Finance on Acorn computers - ~20% deposit & 20 interest free monthly payments. Loans from £700(min) - £3000. Subject to status.

Mail Order - 0161-474 0778 **(All prices INCLUDE VAT)** The lowest prices without compromise

RiscPC PC Cards

A1 5x86-100 (512kb)	£370b
above price includes PC Pro	
Acorn 586-100 (256kb)	£350c
PC Pro (without PCExchange)	£38a
Windows '95 CD (Full)	£90a

The above can be installed directly from CD without previously installing DOS or Windows.

RiscPC Upgrades

233MHz StrongARM	£275b
2nd Slice with PSU	£116c
2nd Slice without PSU	£90c
YES 16 bit Mozart Card	£70a

Memory

Following prices strictly whilst stocks last.

RiscPC/A7000 SIMMS

4Mb	£20a	8Mb	£28a
16Mb	£48a	32Mb	£75a

RiscPC VRAM

1Mb 2nd user	£40a	2Mb	£88a
1-2Mb u/g (exchange)	£70a		

Call for details of memory for other models.

Monitors (Carriage £10)

Older computers will require an adaptor £12

Hi-Spec 14" Monitor £140
FST, 0.28" dp, 1024x768, 30-54kHz & pre-sets.

Ilyama MF-8515G 15" £235
High spec FST Tube with 0.28" dot pitch

Ilyama MF-8617E 17" £480
High spec FST Tube with 0.26" dot pitch

Ilyama MT-9017T 17" £530
Very High spec Diamondtron tube, 0.25" stripe

Printers (Carriage £8)

Canon BJC-4300	£195
Canon BJC-4550 (A3)	£255
Canon BJC-5500 (A2)	£590
Canon BJC-620 (720dpi)	£240
Epson 400 (720dpi, 3ppm)	£190
Epson 600 (720dpi, 4ppm)	£275
Epson 800 (1440dpi, 7ppm)	£390
HP LaserJets 6P	£585

Add £47 to above printers for TurboDriver

Hard Cards/Multi-Pods

See top for other hard discs. Carriage £8

A3000/A3010 Hard Cards

340Mb or 420Mb £150b

Portable Computers

Carriage: a=£2, b=£6, c=£8

Pocket Book II (1Mb)	£305b
NEW Psion Series 5	
- includes PsiWin Link	
Psion 5 8Mb RAM	£480c
Psion 3c(backlit) 2Mb-	£325b
AutoRoute Express	**£60a**

- one of the best packages for the PB/3a

A-Link	£59a	Mac Serial Link	£50a
Parallel Link	£34a	PsiWin PC Link	£80b
3/3a Mains Adap.	£18a	5 Mains Adaptor	£38a

Hardware Upgrades

24i16 Card (1Mb)	£450b
DMI50 Dual Midi Card	£138b
DMI50XGS Midi/Synth	£335b
Dual Serial Card	£104b
FPA for 25MHz ARM3	£67a
Joystick I/F (Not RiscPC)	£30a
Logitech Mouse (Acorn)	£26a
Movie Magic (1 only)	£199b
- Includes two VideoCD films	
RiscTV Card (Irlam)	£265b
RiscTV Teletext option	£45a
Scart Cable (9 or 15 pin)	£12a
Serial Upgrade (A3000)	£27a
2 x 100W Speakers	£25c
Videodesk (Irlam)	£1165b

Scanners (Carriage £8)

ScanLight Video 256 £199
- above is suitable for A3-A4k

Epson Colour Scanners

Include !TWAIN & ImageMaster for RiscOS. Bundles include CorelPaint & OCR software for PC's/PC Cards and approp PC interface card.

GTx-5000 Para bundle	£239
GTx-5500 SCSI bundle	£300
GTx-8500 Para bundle	£525
GTx-8500 SCSI bundle	£550
GTx-9500 Para bundle	£620
GTx-9500 SCSI bundle	£660

I³ Networking (Carr. £6)

A30X0 EtherLan 102	£130
Archi EtherLan 514	£130
RPC/A7k EtherLan 602	£110

Add £17 to above prices for Access+.

Modems (Carriage £8)

33.6 FLASH Sportster	£149
Flash upgradeable to 56kbs	

Modems come with a 9-25 PC wired cable. A3000/Archimedes req'r an Archi wired cable.

Sport'r Flash Message+	£170
ANT Internet Suite II	£110a
ArcFax	£31a
Dual Serial Card	£104b
9-25 Archi or PC Wired Modem Cable	£12ea.a
3-way Serial T-Switch (incl. comm. cable)	£32b

Printer Consumables

Carriage: £2 for Cartridges, £8 for Toner

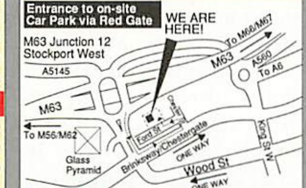
BJ-10 (BC-01)	£18	BJ-200 (BC-02)	£19
BJ-210 (BC-05)	£28	BJ-240 (BC-06)	£Call
BJC-600 Series		BJ-300 (BJI-642)	£16
BJI-201HCbk Black	£10	**BJC-4000 Series**	
BJI-201bk Black	£6	BCI-21Bk Black	£9
BJI-201C/M/Y	£8 ea.	BCI-21C Colour	£17
BJC-800		BC-20 Fast Black	£28
BJI-643 Black	£18	BC-22 Photo Cart	£34
BJI-643C/M/Y	£23 ea.	BC-22 Photo Kit	£39
HP DeskJets-500 ser.		**HP DeskJets 600 ser.**	
Mono	£23	Mono	£25
Colour	£25	Colour	£27
Eps Stylus Black	£16	Eps Stylus II Black	£20
Eps Stylus Colour	£26	Eps Stylus II Col'r	£26
Laser Toner		C3903A (LJ5P)	£64
EP-L (LBP-4)	£64	HP92274A (LJ4L)	£60

Terms & Carriage

Carriage: To benefit personal callers to our showroom carriage is itemised seperately. The carriage indicated is for single items. Please call us for total carriage when ordering more than one item since it is not cumulative.

Terms: All prices include VAT except books. Carriage is not included unless otherwise stated. Carriage charges apply to mainland UK (excluding remote areas, Scottish Highlands, Chann Isles, IOM), elsewhere at cost. Orders MUST be accompanied by a phone number. Prices and spec's subject to change without notification. Goods subject to availability. Goods not offered on trial basis. Restocking fee on non-faulty returns. Educ Inst official orders accepted. E&OE.

Where to Find Us



Books (No VAT)

Carriage: a=£2, b=£6, c=£8,

Acorn RISCOS3 PRM's	£99.95c
Acorn Volume 5a PRM	£29.75b
Acorn BBC Basic VI Guide	£19.95b
Acorn RiscPC Tech Ref Manual	£49.95c
ArtWorks Made Easy (Dabs)	£5.00a
Budget DTP (Dabs)	£5.00a
'C' A Dabhand Guide (Dabs)	£5.00b
RiscOS 3 First Steps (Dabs)	£5.00a
Wimp Programming for All (Beebug)	£10.95a

CD-ROM's (Carriage £2)

CD software for RiscOS

ArtWorks on CD (CC) (Carriage £6)	£90
Childrens Micropedia (Kingfisher)	£58
ClipArt CD 1/2 (CC)	£21 each
Dinosaurs (Microsoft)	£50
Dune II (Eclipse)	£41
Granny's Garden CD	£32
Guardians of the Greenwood	£51
Hutchinsons Encyclopedia 92 for RiscOS	£15
Hutchinsons Encyclopedia 97 for PC only	£15
Kiyeko	£Calla
Musical Instruments (MS)	£50
My 1st Incred. Amazing Dictionary (DK)	£38
PB Bears Birthday Party	£42
RiscDisc Vol 1 / 2 CD	£17 / £20
Simon the Sorcerer CD	£41
The Way Things Work (DK) **Limited Offer**	£40
Ultimate Human Body (DK) **Limited Offer**	£40

Applications

Carriage: a=£2, b=£6, c=£8

Acorn C/C++ (Acorn)	£229c
Advantage (Longman)	£51a
ANT Internet Suite (ANT)	£110a
ArcFax (David Pilling)	£31a
ArtWorks (CC) **Limited Offer**	£88b
Card Shop (Clares)	£23a
Chameleon 2 (4Mation)	£39a
Compression (CC)	£34a
DataPower (IOTA)	£105b
DaVinci (Spex)	£Calla
Disc Rescue 2 (Look)	£43a
Easy C++ (Beebug)	£102a
Eureka v3 (Longman)	£93b
FastSpool+ (WSS)	£17a
FireWorkz Pro (Colton)	£134b
Font Directory2 (Look)	£42a
Font FX (DataStore)	£12a
Hatchback (4Mation)	£35a
HTML Edit 3 (R-Comp)	£47a
ImageFS2 (Alt Publ)	£43a
Image Outliner (IOTA)	£52a
Impression Style / Publisher	£80b / £125b
Impression Graphics Loaders (CC)	£40a
Impression Text Loaders (CC)	£30a
MacFS / MacFS Lite (CC)	£89a / £50a
Ovation Pro	£175c
PC Pro (without PCExchange)	£38a
PC Pro (with PCExchange)	£47a
PC Sound Professional (R-Comp)	£27a
Personal Accounts (Apr)	£40a
PhotoDesk Light (Spacetech)	£120b
PhotoDesk2 (Spacetech)	£245b
Prophet (Apricote)	£154b
S-Base2 Personal / Developer	£54c / £100c
ShapeFX (Datastore)	£12a
Sibelius Junior	£50a
Sibelius 6 / 7	£115b / £898b
Sleuth2 (Beebug)	£99a
SparkFS (Pilling)	£24a
Speech 2! (Superior)	£24a
StrongGuard (ARMClub)	£24a
Studio24 Pro (Pineapple)	£130b
Textures Professional (R-Comp)	£19a
Touch Type (IOTA)	£42a
Top Model 2 (Spacetech)	£149a
TurboDrivers Canon/HP or Epson(CC)	£47b
Vector (4Mation)	£72a
Web Designers Toolkit (R-Comp)	£28a

Games (Carriage £2)

Alone in the Dark (Krisalis)	£27
Birds of War (4D) 2Mb	£24
Break 147/Superpool	£24
Carnage Inc (4D)	£19
Chocks Compendium	£24
Crystal Maze (Sher)	£26
Cyber Chess (4D)	£24
Darkwood (Eclipse)	£23
Drifter (4D)	£30
Dune II (floppy) (Eclipse)	£30
Empire Soccer (Maglm)	£24
E-Type Compend. (4D)	£19
E-Type 2 (4D)	£24
Exodus (Artex)	£25
Fire & Ice (Times Warner)	£22
Global Effect (Eclipse)	£30
GODS (Krisalis)	£10
Haunted House (4D) 2Mb	£19
Holed Out Compendium	£19
James Pond (Krisalis)	£10
Krisalis Collection	£25
Lotus Turbo Chall2 (Kris)	£22
Magic Pockets (Reneg)	£23
Play it again Sam 2/3	£22 each
Populous (Krisalis)	£25
Real McCoy 2/3/4/5	£24 each
Repton 3/4 (Superior)	£22 each
Saloon Cars Deluxe (4D)	£24
Scrabble (US Gold)	£24
Simon the Sorcerer 2Mb	£31
Spobbleoid Fantasy (4D)	£24
Starfighter 3000 (Fednet)	£24
Stunt Racer 2000 (4D)	£24
Tanks (Werewolf)	£23
Time Machine (4D)	£19
Virtual Golf (4D) 2Mb	£24
Wolfenstein 3D	**£10**

Educational (Carr. £2)

10/10 Series £14 each

Early Essentials (over 7), English (6-16yrs), French (8-16yrs), Junior Essentials (5-11), Maths (Number) (6-16), Maths (Algebra) (6-16), Maths (Statistics) (6-16), Maths (Geom'y) (6-16), Spelling (over 9), Essential IT, Geog.,

Fun School 3 (under 5, 5-7, or over 7)	£20
Fun School 4 (under 5, 5-7, or over 7)	£20
Granny's Garden (floppy) (4M)	£25
Maths Circus (4Mation)	£27
Naughty Stories Volumes 1 or 2	£45 each
Playdays (Gamesware)	£22
Ridiculous Rhymes	£45
Rosie & JimTwin Pack	£18

Desktop Projects Ltd

Tel: 0161-474 0778
Fax: 0161-474 0781

Unit 2A, Heapriding Business Park, Ford St, **STOCKPORT**, Cheshire. SK3 0BT. WWW: http://www.desktopp.demon.co.uk
Email: info@desktopp.demon.co.uk. Open Mon-Sat 10.00-18.00 hours.

We Accept



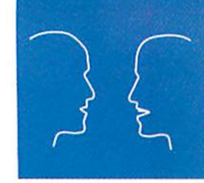








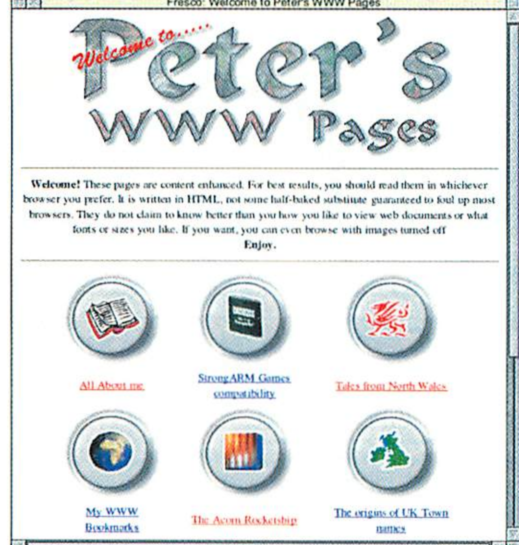




comms

A rocket ship at the outer limits of Ursa Minor

Can it be coincidence, or should I contact Mulder and Scully? This month's Comms page seems irresistibly drawn to extra-terrestrial themes. I was just sitting here when suddenly my browser screen went all white and Peter Smith's website gradually appeared. Mind you, that is what usually happens when you click on an HTML link, but was I being guided by an alien force?



Peter lives in North Wales near Wrexham, and operates a small company in Llangollen who use Acorn computers where possible for electronic engineering and computer systems engineering. They also offer Internet and website design consultancy to customers such as the Llangollen *Dr Who* Experience museum. *Babylon 5, The Outer Limits, Star Trek* and the works of Terry Pratchett are among his other favourite media experiences. Amid all this science fiction and fact, it comes as little surprise to find that Peter is an enthusiastic user of Acorn computers, various aspects of which are covered on his pages.

The famous Acorn Rocketship Risc PC is pictured in the various guises in which it has appeared, and Peter goes on to list some other readers' mysteriously bloated Acorn hardware.

The Acorn Awareness group, dedicated to raising the Acorn media profile is hosted on the site, together with Peter's compilation of StrongARM-compatible games and a Bookmarks page including a link to Voltayre's Encyclopedia Xenobiologica; just the thing for checking out alien life forms?

There are other oddities on this site such as the tale of The Floating Island of Llyn Dywarchen, a survey of toxic plants of Great Britain; please don't touch the Fetid Hellebore; the Acorn users with beards survey and explanation of the names of UK towns.

Peter recommends a visit to local neolithic sites such as the Bryn Celli Ddu burial chamber at Llanddaniel Fab and the hut circles at south stack. He is also a follower of Eric von Daaniken and his theories about alien visitations to earth over the course of history, and avid watcher of the *X-Files*.

Just a minute, what's that bright light shining in under my door...

Peter Smith
http://www.ursaminr.demon.co.uk/

Homing in on ET

SERENDIP is one of the research projects scanning the skies with radio telescopes for a whisper of a coherent signal that could reveal the presence of an extra-terrestrial civilisation. Endorsed by the SETI institute, this Search for Extra-Terrestrial Intelligence uses sky-scan data from the Arecibo radio telescope in Puerto Rico, and this data will be analysed by thousands of ordinary PC users around the world, linked together by the Internet.

The SETI@home project team have hit on the idea that everyone uses screensavers; those programs that kick-in to draw goldfish or animated Guinness adverts on your monitor screen when you stop typing or moving the mouse for a while; and that during the time you're not using your computer, they could be.

Having recruited over 35,000 PC and Mac users so far since the project was announced last year, the plan is to break up the telescope data into manageable chunks and include it and the analysis code into individual Web-downloadable screensaver programs that use your down-time as their up-time, and automatically e-mail their results back to SETI@Home.

Just the intriguing possibility that it might be your machine that overhears the mobile phones on Tau Ceti 4 may be enough to get you e-mailing them right away on the page below. Don't forget that it's very unlikely that there will be a RISC OS version, but owners of PC cards will indeed be able to participate in the project starting early this year.

Don't expect an immediate answer from SETI@Home when you e-mail them for details; I still haven't had a reply from weeks ago, but be patient – the US is closer than 4.3 light years...

SETI@Home
WWW: http://bigscience.com/setiathome.html

Contacting me

Keep sending me interesting URLs for the next yoUR List by e-mail to david@arcade.demon.co.uk, or mail #2 on Arcade BBS 0181 654 2212.

Digital Databank

John Stonier's Digital Databank BBS is no more. Continuing software and hardware incompatibilities, together with John's need to spend more time on regional Acorn show-organising activities, have precipitated his decision to close the BBS from 1 January 1998.

Digital Databank had been one of the most popular Acorn interest bulletin boards and celebrated its fifth anniversary in December. John says "I've had five years of fun with many happy memories and made loads of friends." They'll be able to meet John at three shows this year, starting with the Acorn SouthWest show in Somerset on February 7 1998.

Tel: 01707 390410
E-mail: acornshow@argonet.co.uk
WWW: http://www.argonet.co.uk/users/acornshow/

Beyond Pluto

Jonathan Duddington's *!Pluto* is fast becoming the preferred replacement mail and newsreader for use with *ANT*, *Voyager*, *Termite* and *Acornet* Internet suites and is available in its commercial form about now.

Pluto offers powerful facilities for reading, archiving, categorising and selecting e-mail and newsgroup articles. Other unique features are an integral spelling checker, speech for proof reading, talk-as-you-type and colouring of text to clarify quoting.

The projected price for the basic *Pluto* reader is £24 inc., or £29 inc. with spelling checker and speech. Check Jonathan's website for the latest details.

WWW: http://www.argonet.co.uk/users/jsd
E-mail: jsd@argonet.co.uk

Surfer Server

First shown at Acorn World 97, the ANT Ltd *Internet Server Suite* allows a RISC OS machine on an Ethernet network or dial-up connection to an ISP, to serve World Wide Web pages, electronic mail, news and files to other networked machines.

The suite includes a full Web cacheing proxy server with FTP and Telnet servers. The ANT server suite is a development of the excellent *AlphaNet* server that has run the Arcade BBS Weekend Web and FTP site faultlessly for two years. ANT's new package could save education users thousands of pounds by using existing Acorn technology instead of a costly PC solution.

ANT Ltd
Tel: 01223 567808
WWW: http://www.ant.co.uk



public domain

Spool

Various printer spooler programs have littered the PD libraries and download sites for several years, but Frank Hertel's recently updated *Spool*, is one of the best. It frees up your desktop while non-spooling applications are printing. It's very simple in everyday use and easy to set up. Version 2.33 can be found on Frank's website at http://www.duesseldorf.netsurf/~fhertel

RiscSID

Vincent Penné has produced a RISC OS port of Michael Schwendt's SID music player. The player and front end allow you to replay the massive amount of C64 music kicking around. Definitely one for those retro Commodore fans out there, but all in all it's a nicely produced port and even includes some of the author's favourite tunes. RiscSID is on Arcade BBS.

Sorted

David Thomas has produced a couple of little utilities to help out with memory wastage or crashes. *SocketMgr* is a utility for removing Internet sockets which are not removed when an application crashes. You have to be very careful in its use, but potentially this could save you an awful lot of machine resets.

The other utility is *RemoveDA* which does a similar job to remove dynamic areas which are left wasting memory when an application crashes. Similar in style to *SocketMgr* and very handy. Check David's website at http://java.cms.livjm.ac.uk/cmsdthom/

ShPlouc

Florent de Dinechin's *Shuffle Puck* game has been updated to feature two puck games. It seems a little harder at first, but if you can play it just right you can trick the computer player by putting two pucks in his half at the same time. Mindless fun with a black and white BASIC game. What more could you want? *ShPlouc* can be hunted down on Arcade BBS.

Thump

Yet another thumbnail image browser? Surely we don't need another one? Quite possibly, although Rick Hudson's *Thump* application is just so easy to use its already found its way into my boot up sequence.

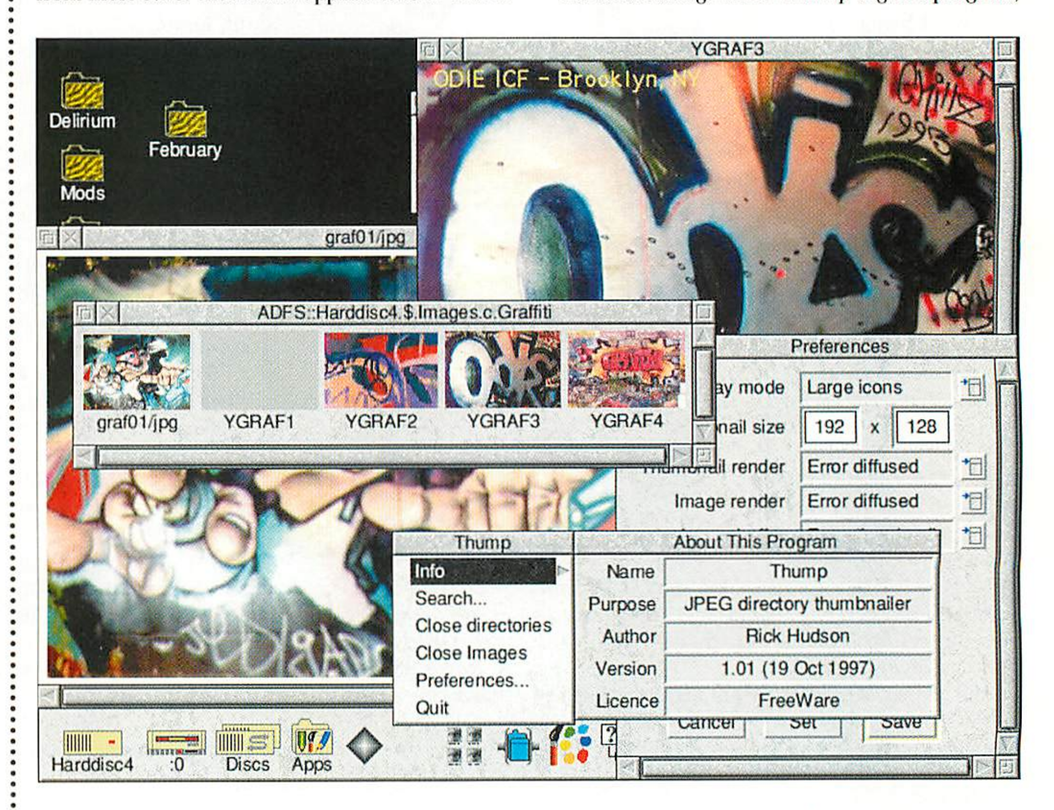
The main difference between *Thump* and all those other browsers is the real time execution of the program. As Rick describes '*Thump* differs from most other thumbnail applications in that it does not build and store a special set of thumbnails – it generates them in real time as you browse the directory structure. Because of the real-time nature it is suitable for sets of images that change from time to time, because there is no thumbnail library to be outdated.'

Using the program is as simple as dragging a directory onto the *Thump* icon and the image thumbnails are displayed. On a SA Risc PC with lots of memory the rendering is so fast it's instantly usable. The display window emulates the RISC OS filer, so you can move about the directory tree with ease.

There are also features for labelling files and adding keywords that you can later do searches on. The beauty of the system is that you can move images around with no need to update a thumbnail library. The labelling feature stores the text details internally to the *Thump* program and identifies the images from their filer characteristics. Very sly. This is one of those excellent applications that you can use intuitively first time without any need for reading help files.

All these things make *Thump* a great program, but there are one or two little problems. At the moment the program only supports JPEG images. The version I had to review (v1.01) was prone to crashing if you searched for labels that were not found, and the program repeatedly fell over when I opened certain directories that didn't contain images. I'm sure Rick will sort out these bugs before long, but he mentioned in the help file that he'd only be supporting JPEGs as they were the only images that could be rendered so quickly. What about RISC OS sprites?

Despite these drawbacks, I'm a big fan of *Thump* and I'd recommend you to try it out. You can download the program from http://www. geocities. com/CapeCanaveral/Lab/6722/thump.html



Recommended PD Libraries

- APDL, 39 Knighton Park Road, Sydenham, London SE26 5RN
- Arch Angel PD, PO Box 41, Exeter EX4 3EN
- ARM Club PD Library, Freepost ND6573, London N12 0BR
- Beebware PD, 83 Forrest Road, Huncote, Leicester LE9 3BH
- Five Star Marketing, 4 Shepherds Walk, Bushey, Hertfordshire WD2 1LZ
- Naked PD, 'Fayence', Fulford Road, Stoke-on-Trent, Staffs ST11 9QT
- The Datafile, Willoughby House, 89 Woodville Road, Boston PE21 8BB

WimpFetch

Teaching the use of assembly language has always been a rather tricky task. Assembly programming is by nature quite abstract and is extremely harsh on bugs. The obvious teaching method is to let the students loose with the a native assembler for their computer. However, if you use the wrong sequence of instructions or store some data to the wrong memory location, you can very easily lock up your machine.

I'm a self-taught assembly programmer and my reset key was getting a lot of use in the early days. Some universities attempt to get round the problem by using the student's computer to write and assemble code which is then executed on an easily reset external processor board.

This gets round some of the problems but it's still very difficult for the student to see what's going wrong in a problem program. As an assembler programmer myself, I was interested to check out Jochen Lueg's *WimpFetch* application which takes a much more sensible route to assembly teaching – do it all in software.

Jochen's desktop program simulates a processor running assembly code. If anything goes wrong you simply reset the program with the click of a button. But, even more useful, is the ability to step through an executing program one instruction at a time. If you accidentally put the software emulated processor into an infinite loop, you can see what's happening rather than simply witnessing a complete lock up of your computer.

WimpFetch is an excellent teaching aid and is well worth a look for teachers or for novice programmers who'd like to try assembler in a more friendly environment.

My main complaint however, is the fact that the program emulates a 65-JL processor (similar to a 6502). Why not emulate an ARM processor which would then provide students using it with working and practical knowledge of an instruction set that's actually in use in a reasonable number of computers?

Gripes aside, *WimpFetch* gets the PD page recommendation and can be found on Arcade BBS.

PD fonts

Public Domain and low-cost fonts have achieved something of a bad name on the Acorn, with the quality of some typefaces being so poor that they literally are worth nothing. For professional DTP work you really can't expect to get much out of PD fonts, but for home use or even bitmap graphics work for demos or games they can be ideal. Prompted by an e-mail conversation with reader Bill Darlington, I've included something of a PD page special on PD fonts.

Graphics work often involves reproducing a small amount of text in a certain unusual typeface. For example, if you're reproducing a logo, you could well end up having to buy a professional font for only a few letters. Bill gets round the problem by using a special look-up list of PD fonts. The process works as follows: Find the real font visually, in something like the Adobe catalogue, then look it up in the list for a PD font, which hopefully closely resembles the one used in the logo.

The PD equivalents can be obtained from quite a wide range of sources. The EFF PDCD allegedly has over 4000 fonts, but quite a few are of particularly poor quality. There's several better routes to finding PD fonts. Several sites on the Net have Acorn ready fonts and a good place to start is the Argonet ftp site at ftp.argonet.co.uk/pub/Acorn/PD/Fonts You could also try Zenta who now sell the old Skyfall fonts at http://zenta.demon.co.uk Bill is quick to recommend a highly underrated company named Dalmation.

As Bill explains 'They produce several discs, many of which are PD. The rest are so cheap, they're as good as PD. There is a complete list of Postscript and other equivalents of the various Dalmation faces at the Image Factory site in Australia http://ozemail.com.au/~imagesfact/ff.html'

Several commercial font companies offer valuable information on their websites and are perhaps at a last resort, the place to go when PD fonts let you down. Try http://www.adobe.com/homepage.shtml, http://www.esselte.com/letraset/index.html and http://www.ora.com/homepages/compfonts/

If you aren't on the Net you can contact Adobe at Adobe Systems Direct, Ltd, Freepost, PO Box 12350, Freepost, Edinburgh, EH11 0NR. Going full circle, the Datafile have a great range of natively created professional fonts, that need to be mentioned. I'm only scratching the surface here, but that should be enough to get an avid DTP fan going.

Bill Darlington and Michael Banthorpe's font-oriented website includes their handy equivalents list as well as GIFs of the complete set of fonts on the EFF PDCD. Point your browser at http://www.grafic.demon.co.uk/fonts.htm Many thanks to Bill for his words of wisdom.

End of an era

I'd just like to say a big thank you to John Stonier, the sysop of the fantastic Digital Databank BBS which will unfortunately have closed by the time you read this. As well as providing my e-mail link with readers of *Acorn User* over the last few years, the BBS has been a great resource of PD software. John's enthusiasm and work for the scene with the BBS has encouraged many a coder and user to get involved in public domain software. Thanks again John, and good luck with the forthcoming Acorn shows!

Acorn on the scene

Acorn's recent move to include a free N64 with new Risc PCs is rather an interesting marketing move from a company that's often been criticised for being out of touch. Although it does seem a little strange to keep it quiet until most of the Christmas market has been missed.

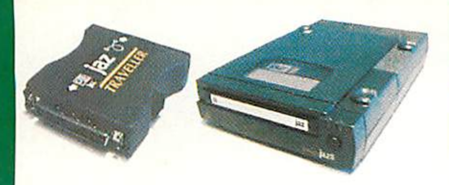
It's a shame that it's actually worthwhile including a games console with a computer that has the potential to run games so well. But all hope is not lost for the Acorn games scene. Judging from the posts to comp.sys.acorn.games, Acorn really seems to be looking to encourage games coders. As I've been saying for several years, there's a wealth of talent in the PD scene that Acorn should be taking advantage of.

E-mail

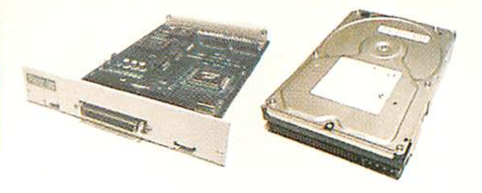
As mentioned above, Digibank is closing in January, so anyone using my digibank e-mail address and having problems getting thru should mail me at the *Acorn User* address below. This will be redirected to my own account.

Contacting me

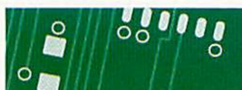
You can contact the PD page by writing to me, Paul Wheatley, at *Acorn User*, IDG Media, Media House, Adlington Park, Macclesfield, SK10 4NP. Or preferably, by e-mail to aupdpage@idg.co.uk







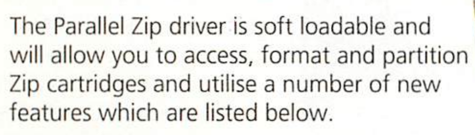
The complete disc solution



PowerZip

Power-tec Parallel Port Zip Driver

Announcing the new Power-tec Parallel Port Zip Driver software.



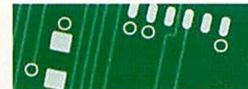
The Parallel Zip driver is soft loadable and will allow you to access, format and partition Zip cartridges and utilise a number of new features which are listed below.

New Low Price



Main PowerZip Driver Features:

- Supports daisy chaining of multiple parallel Zip drives!
- Ability to create many partition types including: DOSDisc.
- Disc write protect option (using Password).
- Media interchangeability between SCSI and Parallel Zip.
- Ability to read old Argo Zip Discs.



PowerROM

Power-Up your old SCSI card!

If you have an old SCSI card from one of these manufacturers:

Acorn • Castle Technology • Cumana
HCCS • Lingenuity • Morley • Oak • Vti

and want all the benefits Power-tec SCSI card users enjoy as well as being Risc PC/StrongARM compatible, **then you need a PowerROM!**

The PowerROM upgrade gives your old card a new lease of life, with the **full** SCSI 2 command set and all the functionality and compatibility of our Power-tec SCSI cards.

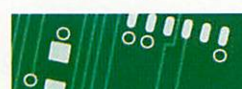
PowerIDE

Power-tec IDE Partitioning Utility

Our new low-cost IDE partitioning software allows you to partition large IDE drives and gives the following features:

- Allows users with Risc OS 3.6 & 3.7 to partition large IDE drives (eg 9GB) into smaller partitions thus reducing the LFAU size and saving hard disc space.
- Allows users with versions of Risc OS 3.1 & 3.5 to partition large IDE drives (eg 4GB) into multiple 512MB partitions.

The PowerIDE driver is soft loadable and allows you to access, format and partition large IDE drives for Risc OS and DOS.



PowerJaz

Power-tec Parallel to SCSI Jaz Converter



Announcing the new Power-tec Parallel Port to SCSI converter for Iomega SCSI Jaz Drives.

The Parallel Jaz driver is soft loadable and will allow you to access, format and partition SCSI Jaz cartridges *on the move* using the Iomega Jaz Traveller interface supplied.

PowerSCSI

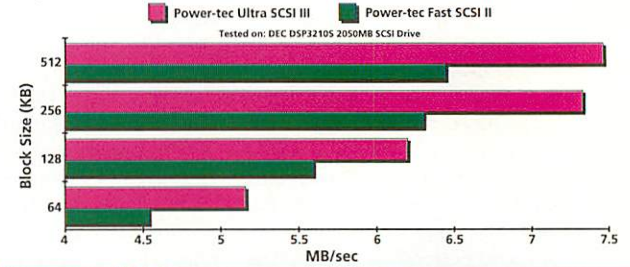
Power-tec Ultra SCSI cards

The Power-tec SCSI cards support all the leading *SCSI devices* from Iomega, IBM, Seagate, Quantum to name just a few.

Acorn User Magazine, Christmas 1997 SCSI Review said the following about our Fast SCSI II card:

"On the fastest drive tested, it was able to differentiate itself from the rest of the pack."

If you want really fast data transfer speeds on your Acorn Risc PC, for use when Video Editing, serving files on a NetWork or even to speed up the overall operation of your machine our Ultra SCSI III card is even faster than SCSI II, and will be ideal for you!



PowerATAPI

Power-tec ATAPI CD ROM Drivers

New low cost Power-tec Atapi, gives you full Atapi CD ROM drivers which support a wide range of CD ROM drives including Multi-changers (suitable for Risc OS 3.1 onwards).

Prices

PowerZip	Driver only:	**£25**
PowerZip	with Iomega Parallel Zip Drive:	Was ~~£135~~ **£115**
PowerJaz	Driver only:	**£25**
PowerJaz	with JazTraveller Interface:	**£49**
PowerIDE	Driver:	**£25**
PowerAtapi	Driver:	**£25**
PowerROM	Upgrade (state make of SCSI card):	**£35**
Power-tec	Fast SCSI II card:	**£135**
Power-tec	Ultra SCSI III card:	**£175**
Ultra SCSI III	Upgrades:	
	v1.0x Standard Upgrade:	**£110**
	v1.0x Technical Support Subscribers:	**£90***
	v2.0x Standard Upgrade:	**£49**
	v2.0x Technical Support Subscribers:	**£29***

NB: All prices exclude VAT and carriage.

* This price applies to customers with Technical Support current at 1st September 1997.

Please call or e-mail us for more details...



47 Winchester Road, Four Marks, Alton, Hampshire, GU34 5HG, UK

Tel: +44 (0)1420 561111 **Fax:** +44 (0)1420 561100
E-Mail: sales@alsystems.co.uk **WWW:** http://www.alsystems.co.uk



Supporting a worthy cause

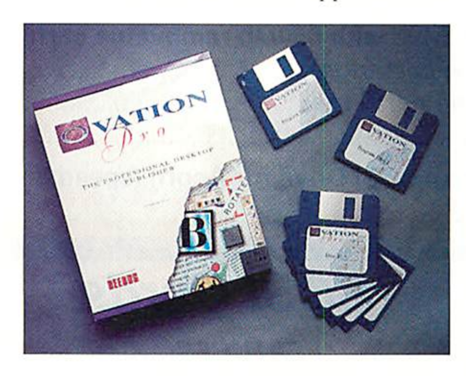
Some months ago I was bemoaning the lack of support certain software houses appear to give their products. At that time, I asked for nominations for good software that was let down by poor support or a lack of development. The current moribund state of the Acorn software market – with a few notable exceptions – is rapidly developing into a state where we have wonderful machines and little to run on them.

I also mentioned that there may be a case for the newly reformed AcornSoft to become involved in more mainstream software rather than such esoteric developments like Java. The thrust from AcornSoft seems to be towards Internet related developments. I may be wrong but I am not holding my breath waiting for a decent integrated package or business suite from them.

A large number of readers contacted me to offer nominations for badly supported/developed software. It is not the intention that this becomes some sort of naming and shaming exercise for software houses. Many of the people who did contact me did so along the lines 'this is a really good piece of software but...'.

Many correspondents mentioned *Impression* in its various guises as no longer being developed by Computer Concepts. I think this is probably a battle which is lost and I urge you to look to *OvationPro* from Beebug.

PipeDream from Colton Software is still a much loved package and although it has been upgraded to *PipeDream 4.5*, the lack of a manual means that it appears to be



available only as an upgrade to *PipeDream3/4*. I spoke to Colton about this and suggested an on-line manual, but for commercial reasons they prefer to continue to develop the *FireWorkz* family which is well supported by them.

!Draw itself was a favourite for the updating market. Most agree that it is probably among the best pieces of software ever bundled with a computer, but that it is now long overdue for some serious development work. I personally object to buying all the add-on programs required to make it really useful and work in the way which it now should.

An old favourite subject of mine is the lack of relational databases for Acorn users (see elsewhere this issue). *Squirrel Database*, originally from the now defunct Digital Services and now marketed by DSL Supplies was mentioned as being in great need of better support and continued development. Along the same lines is *S-Base*, originally from Logotron.

At least two correspondents mentioned *Ancestry 2* from Minerva as being potentially very good but suffering from a lack of support/development. I must admit to knowing little about this package except that it is concerned with genealogy or tracing one's family tree. This is certainly a growing area of interest for many families and would appear to be a potentially lucrative market for a good piece of software.

A second package from Minerva, *ProCAD*, was also mentioned as being good, but in need of some development work. As this article went to press I received an e-mail about this package and development/support for it. See elsewhere on this page.

Other packages have been named but rather than deal with them all in this issue, and probably making it too negative, I will hold some over for a future page.

Business to business

As befits the only page in the known universe dedicated to the business aspects of Acorn computing and in line with this month's general theme of software support, I have been contacted by a software house wishing to dispose of a number of titles as a going business proposition.

The software house can no longer adequately market or support the titles and some of them need a degree of upgrading to modern standards, for example to make them StrongARM compatible. The titles might complement an existing range or offer the opportunity for a new software business.

The vendor requires only serious enquiries and I have offered to use my services as a point of contact and 'honest broker' between the vendor and possible interested parties.

If you are seriously interested you can contact me via e-mail at the address at the bottom of this page or via letter at the magazine address.

ProCAD developments

As mentioned elsewhere *ProCAD*, originally marketed by Minerva, is a piece of CAD software which required better development and support.

I was contacted by David Snell, the original author, who tells me that he has signed a joint marketing and sales agreement with Minerva. Basically it should mean better support, further development leading to a new version and a new manual.

No pricing details are available as yet, but watch this space and I will bring you further news as I get it.

Technical help

Looking back at my e-mail over the last few months I have been struck by the diversity of technical questions I have been expected to field. These have included giving advice on the second-hand prices of Acorn computers, stores which stock *Acorn User*, whether RISC OS is a variant of UNIX and the names and addresses of Acorn dealers in Northern Ireland to name but a few.

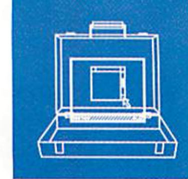
Please keep sending your queries in and I will try to answer them or pass them on to others more knowledgeable. Obviously Mike Cook also deals with technical questions via his 'Hints and tips' section. E-mail is certainly the quickest method from my point of view but I will resort to snail mail for the un-wired among our readers.

Contacting me

You can contact me, Mike Tomkinson, by post at the usual *Acorn User* address or by dropping me an e-mail at:

aubizniz@idg.co.uk

portables



S5 Messaging Suite

After what seems like an eternity, Psion have finally released their integrated message suite allowing users to send and receive faxes/e-mails and browse the World Wide Web. The program is free and is available for download at http://www.psion.com/

Installing the *Messaging Suite* is straightforward enough if you have a *Windows 95* machine, as a new program called *EPOC Install* performs the task automatically. It is also possible to install the machine from a Mac, but this is a little more complicated.

Once installed the *Messaging Suite* adds three more icons to the control panel section and two new applications onto your extras bar.

The new control panel options allow you to add/remove applications and set up your Internet provider and modem. This is relatively easy, and default settings are included for the most common modems and ISPs.

The two new applications are imaginatively called *Web* and *Email* and allow you to surf the Web and send/receive faxes and e-mails.

Connection to the Internet is automatic whenever a remote Web address is entered, or you request to open the remote mailbox.

Web is a reasonably powerful Web browser, supporting the majority of the HTML 3.2 standard with the exception of frames and image maps. This can be a bit of a pain, but most sites offer text-only versions.

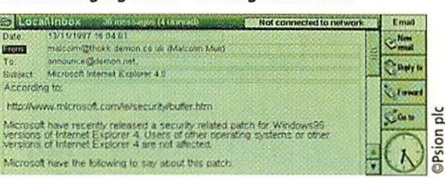
Web pages look reasonably good and are perfectly readable. The system is fairly quick when handling just text, but slows a little when handling JPEGs and GIFs.

My main gripe with *Web* is that it does not support the 'mailto' tag which means there is no easy way to transfer an e-mail address from *Web* to *Email*.

Email replaces *EasyFax* and brings e-mail as well as fax facilities to the S5. Sending e-mails and faxes is straightforward, as is connecting and downloading e-mails. To save time the system only downloads the headers and it's up to you which e-mails you download in full. However, *Email* is lacking in several key areas. The address book is simply a list of e-mail addresses and provides no support for aliases or groups. Also the program doesn't support attachments and multiple mailboxes which for some people/ISPs are vital.



The Messaging Suite – surfing the Web...



...and sending e-mails

Overall, not a bad first release and the suite finally allows S5 users to access the Internet. However, Psion need to work on some shortcomings to ensure users don't get left behind.

Psion plc
Tel: 0171-262 5580

S5 ROM upgrades (again...)

With all the fuss on the Net about the various bugs in EPOC32 and the television debut of the S5 on BBC's *Watchdog*, Psion have agreed to upgrade free of charge all machines with ROM version 1.00.

Psion will collect your S5, fit version 1.01 of the OS, and then return it to you five days later.

Version 1.01 fixes most of the more prominent bugs in EPOC32, including the very annoying printing bug mentioned in my last column. For more details about the upgrade ring Psion's freephone hotline on 0800 018 6637. I haven't sent my machine off yet to be upgraded as, at the moment, I can't afford to be without it. Fortunately it doesn't suffer from many of the known bugs.

I am currently unsure whether to bother with the free upgrade or to wait until 1.10 comes out next year. Although 1.10 will cost about £50, it will also have some new features, and as I'm going to have to lose my machine then anyway, I may well wait.

I'll let you know my decision in the next column.

Handwriting recognition

When Psion first released the S5, many people thought it odd that EPOC32 supports touch-sensitive screens and yet had no support for handwriting recognition. This situation has now been resolved with the release of *Allegro* from Purple Software.

Once installed and loaded, a small floating window appears into which the user enters the characters they wish the system to recognise.

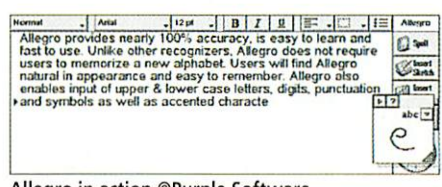
The system only handles single character input which may seem a bit limiting in terms of speed, but you soon get used to it and it is actually quite quick.

The characters have to be inputted to suit the application, which means the user has to adjust their style of handwriting rather than *Allegro* learning the users. The only letters that I have problems with are l, m and n which tend to come out as i, w and r!

The program has several different modes of operation depending on whether you wish to input symbols, numbers, capitals or accented characters. The mode of operation can be selected either using a special character or through a menu accessible via the floating window.

Allegro also has a macro function which allows the user to input a string of text by writing a single letter.

Overall, *Allegro* is an excellent handwriting recognition program that in my experience has a very high rate of accuracy. If you have any use for such an application then I'd highly recommend it.



Allegro in action ©Purple Software

S5 N-Store

H.S.Software have released a S5 version of their excellent *NStore* program. I must confess to never having looked at the program before I got hold of the S5 version but I'm very impressed.

The program allows teachers to record the progress of children through the National Curriculum and produce reports based on NC level descriptions as well as storing details on attendance.

The S5 version takes full advantage of the enhanced graphics and touch-sensitive screen. The most noticeable advantage of this is that data entry is made much easier as the levels can be highlighted by clicking on the relevant box.

The only possible problem with this program is not H.S.Software's fault. The software needs downloading onto the S5 and currently this can only be done using a PC running *Windows 95* which may cause some schools a few problems.

Overall, this is an excellent piece of software and any teacher with a S5 who is not already using *NStore* would be well advised to purchase a copy.

H.S.Software
Tel: 01792 204519

Contacting me

You can contact the Portables page by writing to me, Mark Taylor at *Acorn User*, Media House, Adlington Park, Macclesfield SK10 4NP, or by e-mail to auport@idg.co.uk

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RailPro

Jos Keijzers

!RailPro is a combination of game and simulation, where you are an assistant in the traffic control room of a railway station. It is created in Mode 28, (and BASIC), in order to have a reasonable portion of the display of the lay-out on screen. Your goal is to let trains arrive on the platforms as given and direct the trains to their correct locations or exits.

In reality one doesn't see a train in the control room, the board with the lay-out will show bars of light when trains occupy a sector. As this would be too boring for a sim, I've made little trains that will jump from cell to cell, so no smooth train running here. The second difference is the speed – on average you will have one train per minute to deal with. You may think it's slow, but you'll soon find out that the whole thing keeps you busy. You won't be able to run off for a minute if the game isn't paused.

Your instruments

To play the game you need both mouse and keyboard. The mouse does most of the things you wish to do. Clicking Menu will show a menu in the textfield with the keyboard options you can use. Clicking Select on a:

Train Gives information about the train – number, destination, arrival or departure time, earned revenue thus far.
Main signal Switches a signal from red to green to red.
Sub-signal Switches the signal from green to red/orange to green.
Point Switches the point. At English points it will show three different positions: points left, right and crossing. There are three-way points as well – clicking will change to another position.
Entry points Tells you the name of the destination.
On station platform Tells you the station name.

When you click on a signal or a point when a train is on it, you get information about the train.
Train Redirects a train in the opposite direction. This may be useful when you sent a train on a wrong track, but it will only work when the train is stopped by a red signal. Click either on the front or end of a train.
Signal This will switch a signal from red or green to orange.
Border of map This will move the area and display the adjacent part of the map.

The keyboard controls

Once you've examined a map for the first time press S to start. The first trains will then be announced. To pause the game press P, C to continue. While pausing the screen will display a 1/4 scaled view of the whole layout. Pressing M when paused gives you Management information.

With the cursor keys you can move and view the whole layout to find out where your stations are and where the trains appear and disappear. Pressing Control with the left or right cursor keys will jump the layout two screens further. When you wish an overview of all the different departure times, pressing D will show all departures that are due – the time, track and destination. Pressing Space will clean the layout of "dirt" and tables. When anywhere in the map, pressing Space will also return you to the area where your main station is visible.

All maps start with the idea that your station is a terminal so that all trains get a new destination and departure time once they've arrived. If you feel that it has become too busy for you, press T. This changes your station into a through station. Many trains will give another entry point immediately as their destination and will only stop for a short time at your station. Goods trains will not stop if all signals are green. Pressing T again will make your station into a terminal again.

Pressing I will show the interval table and tell you how you can change the intervals on entry. Pressing Q quits the game immediately. You are asked if you wish to save the situation of that moment for the next time.

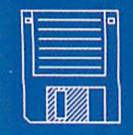
Some statistics about your achievements are put in a logfile within *!RailPro*. There's ➤

Devious things to watch

When a train has reached its departure time it will try to run. This will work fine when the signals are green or orange. If however the train is of the type IC or LP and it is at a platform with a red signal, a quick switch from red to green won't help as it will wait another 30 seconds before it attempts to leave again.

Another thing that will happen is the departure of more trains at the same time. You'll have to decide which train will go first and which will follow slowly or wait completely. And, of course, keep an eye on the points that will have to be switched quickly. Watch the manual signals – they're likely to be forgotten, leading to delays and wondering why a train hasn't arrived yet.

On your map there may be suburban station platforms. If you have a through station stopping an IC at an suburban station may result in this train trying to go in the opposite direction. ICs expect only to be stopped at main stations so it sees this stop as being the main station. If a train meets a red main-signal at full speed, it has to use its emergency-brakes to stop. You'll get a message from an angry driver. It will not only cost you money, but also time, as the train-systems have to be reset before the train cans continue. If it is not safe for a train to enter an area, see to it that you switch the previous signal to orange (or red/orange).



RailPro

➤ also a Bonus list that will appear when your achievements are so good that you may place yourself in the Top Ten. When you're doing too bad this list won't be shown. If you dislike the idea of a Bonus list you can avoid the confrontation with it by renaming or deleting the *Scores* file within *!RailPro*.

Signals

!RailPro handles three types of signals:

Manual main signals which are switched to red by trains, but not to green. This has to be done by you with a mouse-click.

Automatic main signals which are switched to red and green by the trains. If necessary you can switch them also of course.

Sub signals warn trains if they have to slow down because of an upcoming red signal. They are also there for you to decrease the train speed when maintenance takes place on a following part of the track. During normal running, trains will switch them to orange when passing and back to green when going through the next sub-signal.

The trains

There a three types of trains: InterCity (IC), Local Passenger (LP) and Goods trains (GD). IC is fastest, LP and GD are slower. When an IC or LP passes a platform, it will reduce speed. On leaving a platform it travels at slow speed until the next green signal. Orange signals reduce the speed of the trains. An orange signal will switch to red on passing, and when the train passes the next signal it will switch back to orange. When a train runs slowly because of an orange signal it will continue to do so until it meets a green signal. Then it's full speed again. By the way – red is stop.



How to play it all

First you get the announcement of a train approaching. This announcement tells you the type of train, its destination, its arrival time and on which platform it has to arrive. If the platform is free, switch the platform signal to green so that you remember where the train has to be. Then follow from the main track the route the train will have to go through – the street of points – and switch all points so that a flow of cyan runs to the platform, not being blocked by any point.

Don't panic.

When you've prepared the route, switch the manual signal on the main line to green so that the train can continue to run until its arrival. Most of the trains arrive early so corrections are always possible. If you suddenly see blocked points try to stop the train at a red light. You can switch all the signals with the mouse. At least 15 seconds before a train leaves you will have to prepare the points for its departure.

There's no manual signal for the way out on the main line, obviously. If a train derails you'll only be able to see the cause after ten minutes. Keep on playing and try to make trains avoid that spot. It's better to send a train to another destination if the main line is blocked than to keep them waiting.

The platforms are not always fully numbered. You may decide to go from top to bottom or bottom to top. The game calculates if platforms are free or will be free when the next train is sent in.

ICs and LPs will only give notice of an arrival when they're at the grey platforms of their destination, stopped by either a red light or a red buffer and also when they've arrived at their maintenance siding. GDs will only do so on their special siding tracks. If they stop anywhere else they'll think they haven't arrived yet. For the rest it's a matter of experimenting and finding out how things work. When the game starts it appears rather slow, but within 15 minutes you may get the first signs of stress.

Inside both *!RailPro* and *!RailEdPro* there are extensive files covering the game in much more detail including the financial aspects. Have a go without reading them at the peril of your passengers and your own peace-of-mind

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The art of ArtWorks

Part one

Nicholas van der Walle of Astute Graphics looks at how to create better results from this most seasoned of vector packages – this month he deals with colours

My memory nearly alludes me as to the launch date of *ArtWorks*. To say that it has been on the Acorn art scene for some five years is one thing, but to add to that the fact that is has been *the* art package for all that time sounds slightly ridiculous. This is especially the case when you consider the fact that the number of updates conducted by its owner Computer Concepts could be counted on one hand. However, stood the test of time it has, and here to stay is a fact, with the only consolation being in the form of a small number of add-ons to make this package more relevant to today's work.

Over the past year or so new life has been brought into *ArtWorks* through the creation of a number of now-essential modular add-ons, by the likes of Martin Wüerthner. Modules such a *Polygon* bring new functionality (giving the ability to create *n*-sided polygons along with stellated shapes), but with tools such as *Intersect* new possibilities have been generated. Couple these advancements with the original strengths of *ArtWorks* as well as a little know-how, and it is possible to create illustrations that would not look out of place on vastly more expensive setups. It is the 'know-how' that I wish to convey to you in this series.

The colour concept

Whereas the standard *ArtWorks* colour system is not state-of-the-art, it is versatile and completely accessible. It possesses all the basic features necessary to quickly generate and apply colours, apart from transparencies. And while I'm on the subject of transparencies, it must be noted that such fill types can not be implemented without a rewrite of its core program – a task which is not likely to be undertaken by Computer Concepts.

Therefore in order to create such an effect a more complex, yet realistic, approach has to be taken which will be explained later in this series. Having become familiar with the *ArtWorks* manual many years ago, some hidden talents of the colour system only appeared later on. One of the main features to be found in most of my recent artwork is that the whole image is coloured in a relative manner.

A relative colour scheme is one which can be altered globally with only a few clicks of the mouse in order to adjust a small number of key colours. By carefully creating all necessary key colours before filling one object it is possible to create such an image. Some uses of this disciplined technique are:

- The ability to globally alter all shades of a particular colour, including those interpolated with other colours
- Altering the sheet colour (which in standard form appears to be white, or no colour in print) along with all blended features such as drop shadows
- Being able to alter the complete atmosphere of an illustration or even invert the whole colour scheme in order to create negatives

One of the first steps that should be taken is to create a colour named *Background* (ensuring that it is process colour, not a spot colour), which is typically white. This colour should then be specified as the *Paper colour* in the *File – Choices – Page setup* dialogue box. This may seem pointless in many cases, however there are certain unforeseen instances when this small bit of forward planning may save some considerable time, as final prints may not always be on a standard white background. It is always possible to save a file with just this small addition as the 'DefDoc' in *ArtWorks'* Auto directory, so that the background colour will be present whenever a new picture is started.

Dropping the shadow

As an example of why creating a background colour is useful, I shall explain the steps taken to create a true drop-shadow with faded edges manually.

After creating the background colour, and specifying it as the paper colour, create a profile which will have the drop-shadow applied to it (in the case of the example in Figure I it is a letter N converted to a path). Clone this profile twice which causes two identical replicas to be placed in the same position above the original, thereby obscuring it.

By selecting the top profile it is possible to edit every node with the use of either

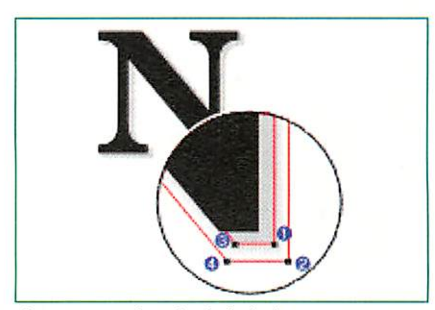


Figure I: Creating the faded edge

the select, curve or straight line tool. Drag each node outwards by a similar amount (like node one to two, or three to four in Figure I) so that the cloned profile is ➤



The art of ArtWorks

Part one

➤ effectively emboldened. A hint at this stage: the more the profile is enlarged/emboldened, the wider the spread of the shadow, which indicates the further the profile casting the shadow is away from the sheet.

Upon completion, fill the edited profile with the aforementioned Background

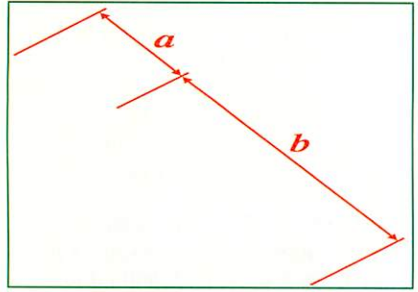


Figure II: Creating a background/colour mix

colour, making it the same as the paper colour. Move this profile to the back (Ctrl-B) then select the now top profile, which is identical to the original. Choose the linear fill tool and specify the start colour as Background, and the end colour as Black. Drag the start to end graduation arrow in a similar proportion to that found in Figure II.

By starting the graduation process a large distance *a* from the profile, and ending up at an even greater distance *b* in a south-east direction, the profile nearly appears like the solid colour Background with *a/b* 100 per cent black added. In the case of Figure II, the profile has approximately 25 per cent black added in order to make it a suitably darker shade of the background colour.

The greater the distance between the profile and start to end points, the more solid the colour as long as the ratio *a/b* remains the same. If this ratio is altered so that *a* increases, the profile will become darker. The same applies vice versa.

By selecting both the previously emboldened profile (it may be essential to turn the render quality to zero so that you may see the background colour profile), and the linearly filled profile it is possible to see both profile's nodes which will aid blending. Selecting the blend tool, click on one of the emboldened profile's nodes and select-drag the blend arrow to the corresponding node on the linear fill profile. By doing this, and clicking on the blend tool's '1 to 1' button on the info bar, a perfect blend is ensured.

Remove all possible line colour in the blend, move it in a south-east direction and force the blend to the back under the original profile. The result is a very realistic drop-shadow with faded edges.

Playing the chameleon

All this trouble may seem over-the-top in terms of creating a mere drop-shadow. It is, however, the basis of a relatively coloured image. To prove this, edit the



Figure III: Drop shadow colour change

background colour. By doing this the shadow alters suitably, keeping the whole effect intact. This is demonstrated in Figure III, where the background colour of Figure I, which was originally specified as a CMYK value of zero each (white), was altered to a shade of blue.

This technique comes into its own when there are many blends to be considered, for example if the drop shadow were applied to a word rather than a single letter. If the "traditional" approach were taken, then each letter blended would have had to be reverted back to its original profile, altered in colour and individually re-blended. The second example uses the facility of tints which is a true built-in relative colour system. Originally meant for spot colours, shown by the shades of Black in the standard palette, tints can be very useful when creating a globally relative colour image.

The only drawback is the fact that a tint may only be a shade of a pre-determined colour relative to white. This is why the linear fill method was used in the original example, as the shadow had to be darker than the background colour, which is impossible to achieve through the use of tints.

In Figure IV, the letter O is given the back-light effect. Given that the

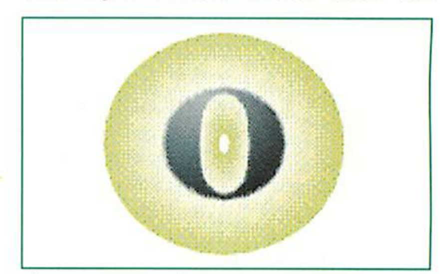


Figure IV: Using relative tints

Background colour is already set up as a shade of green, it is possible to create a new colour which is a tint of Background (in the case of Figure IV, the tint is 15 per cent). By converting the letter O to a path and then cloning it, the cloned profile's internal/external joined paths are broken apart using the *Break Shapes* command.

After this operation you may find that one of the split profiles does not have any fill colour, even after it has been selected and filled using the colour picker. A little known fact is that it is possible to determine whether an object is filled using a button in the Line/Shape info dialogue box (found in the Objects sub-menu). This feature is independent to the settings determined by the standard colour picker.

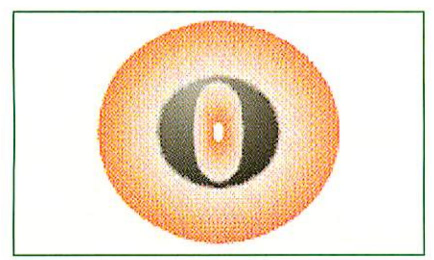
To fill a closed or open path you may have to select it by clicking on its outline when the rendering level is taken down to zero, as it can not be selected by any other method, then selecting *Filled* in the Line/Shape info dialogue box. By enlarging the outer profile, and making the



inner one smaller, then rejoining the two profiles to make a single ring once more, the letter O has been instantly emboldened.

Colour this shape using the solid background colour. Cloning the original letter once more, break the paths apart then rejoin (this is done to ensure that a blend functions properly on a *1 to 1* basis), finally filling it with the tint colour.

By blending between these two profiles (between corresponding nodes) and clicking on *1 to 1*, the back light component is created after the blend has been put to the back. This method is useful for creating such things as halo effects by blending between rings constructed from pure circles.


Figure V: Backlighting objects

However, this "halo" is also instantly adjustable in terms of colour just like the original example. With tints, the tinted colour will always remain along the percentage path between the original colour and white, so if the original colour is altered, the tint automatically follows as shown in Figure V.

Blending linear fills

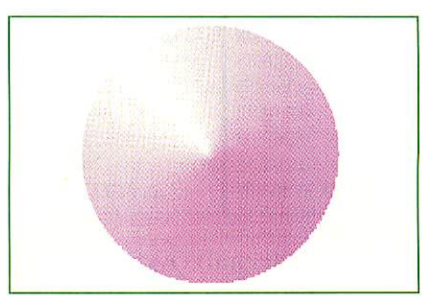
Taking the blending of shapes one stage further, it is possible to blend between two different linear or radial fills to great effect under certain conditions. The first rule is to have all new colours in the same colour model. This model is preferably CMYK, as this is the one adopted by the majority of home and commercial printers.

All colours may be selected using any three models (RGB, CMYK or HSV) – for example, if you prefer to work with the artist's palette HSV – but before the new colour is clicked OK, ensure the chosen model is selected by clicking on it, and let *ArtWorks* calculate the conversion. The reason for this is stated in the *ArtWorks* user manual.

The second rule is *not* to create Spot colours unless you really are aware of the consequences. By making certain colours as the spot variety instead of process, a restriction is placed on linear and radial fills. It is impossible to fill between a certain spot colour and another process one (as it defeats the whole object of spot colours) and it only leaves you with the choice of creating a linear or radial fill between the spot colour and a tint of it or white.

The third rule with blends is that of trying to create a suitable set of profiles. The most suitable sets are those which have an identical number of nodes and corresponding straight/curve line type – effectively one being an adjusted copy or clone of the original profile. While *ArtWorks* does a very good job of a bad situation, interpolation between dissimilar paths cannot always be controlled in appearance as well as matching profiles. Neither can a smooth visual effect that is required be gained under such conditions.

Armed with all these limitations you can set about creating some very smooth linear or radial fill blends that generate outcomes that are usually unobtainable, such as the cone shading in Figure VI. This particular blend is conjured up by drawing a circle with a radial fill as shown in Figure VII (although the purple cone colour could be anything). The start colour of the fill can be another light colour, for example pale green, to give a green ambient lighting effect.


Figure VI: Making a cone

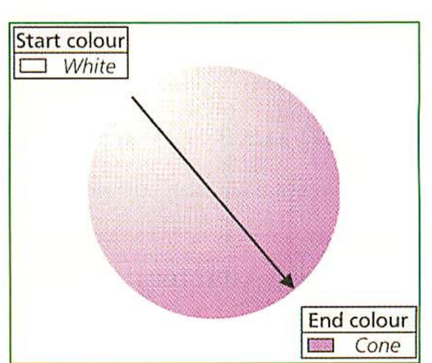


Figure VII: Start with a radial fill

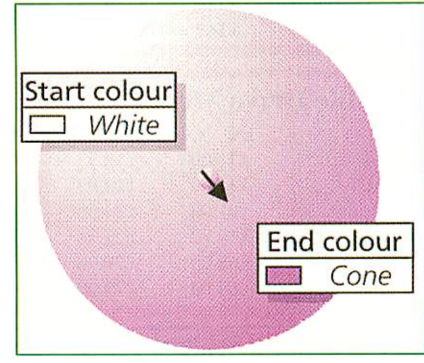
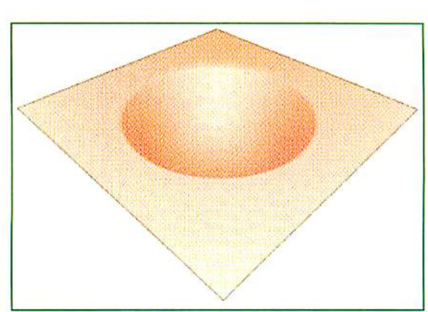


Figure VIII: Add a tiny circle and blend

This circle is then cloned and simply scaled down to an approximate size as shown in Figure VIII. The scaling automatically adjusts the start and end radial fill points so that it just becomes a miniature version of the original in every respect. Blending is then applied, which will result in the shaded plan view of a cone. Also, by scaling the centre circle down further before blending, the tip of the cone will look sharper, just as a larger centre circle will result in a blunt appearance.


Figure IX: Not as hard as it looks...

To finish off with this month's hints 'n' tips, here is a simple pseudo 3D object that is possible with a standard version of *ArtWorks* by just using the methods outlined in this article. Figure IX isn't as hard as it looks, and only took a few minutes to perfect and consists of five profiles blended together. Who needs *Xara Studio*?

AU

Further reading

Being completely biased, I have to give a mention to my website which has further free tutorials for *ArtWorks* users. Some are completely separate topics such as how to use *ArtWorks* to create desktop and website icons, while I also hope to spend some time elaborating on topics discussed in this series.
The tutorials may be found at;
http://www.astutegrfx.demon.co.uk/
Please send any comments or suggestions of topics to cover in later issues by contacting me at the usual *Acorn User* address or e-mail:
nick@astutegrfx.demon.co.uk





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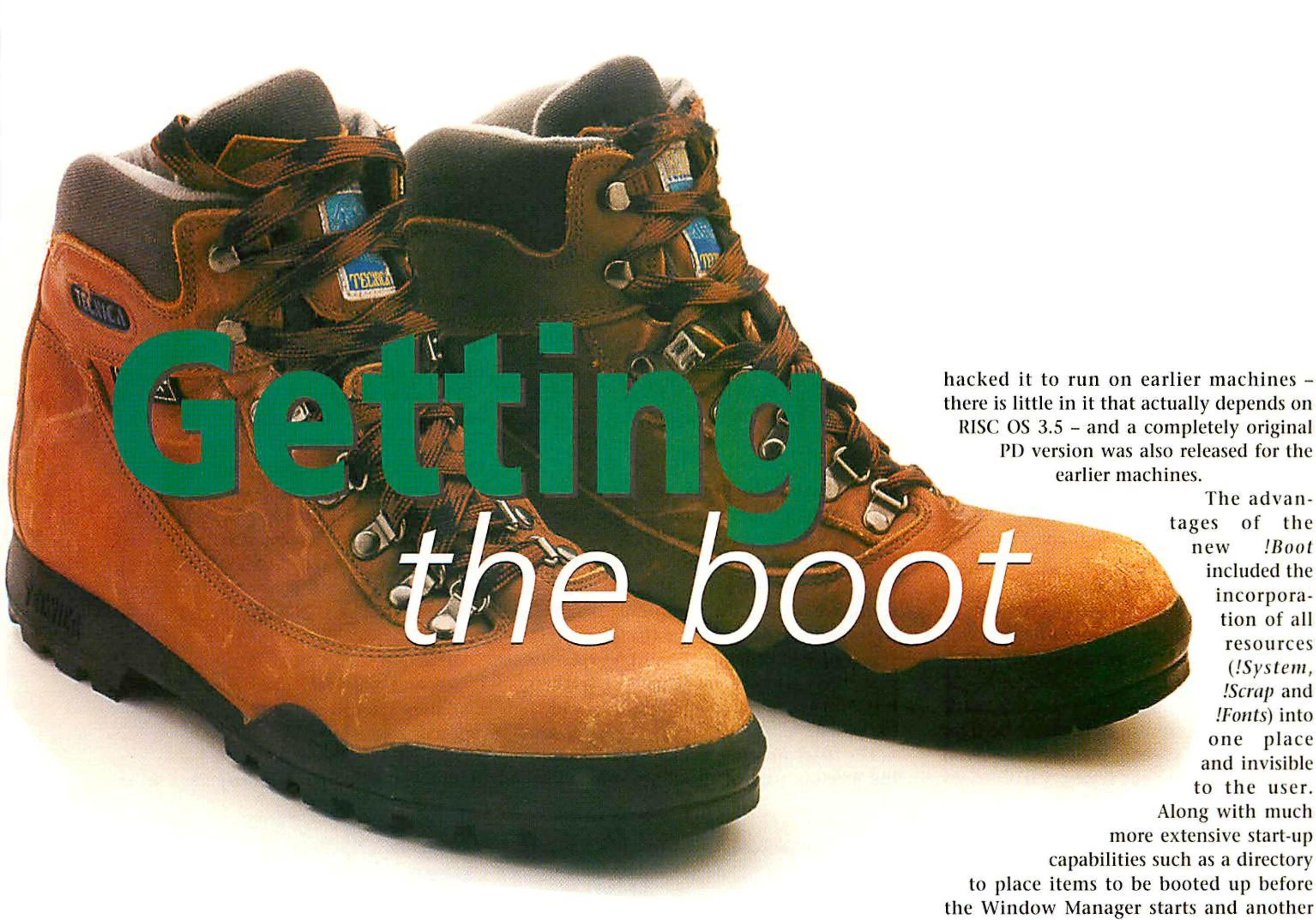
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Getting the boot



Steve Turnbull explains Acorn's advanced !Boot structure

The *!Boot* file has been with us for many years, in fact it started on the BBC Micro when pressing Shift+Break would restart your machine and attempt to run (or execute or load) the *!Boot* file.

The feature to boot only on Shift, or boot without Shift was a configurable option though it had to be hardwired – something that I did use once when creating a standalone demonstration machine, on that occasion all the software was blown onto roms and booted from there.

With the BBC Master came the ability to hold options in CMOS ram, which meant that a * command could be used to change the settings. But, for the most part, auto-booting was not used since few machines had hard discs and there was little need to run anything to set up the machine.

Once RISC OS and hard discs arrived the situation changed. It may be a well-known and useful feature that an Acorn 32-bit machine can start up and function without accessing a disc, that doesn't mean it's always a good thing.

RISC OS uses outline fonts, but where is the *!Fonts* directory on the hard disc? Major applications need to load modules, and the common ones are stored in *!System*, they also like to have access to the scrap space in *!Scrap*, so where are these?

Many people want to load up applications, whether word processors or screen savers, when the machine is switched on. So came about the change to auto-booting and the creation of the arcane *!Boot* file.

A typical *!Boot* file, usually of type *Desktop*, will locate the machine resources *!Fonts*, *!System* and *!Scrap*, by executing their internal *!boot* files and then run any applications.

The main *!Boot* file is essentially very simple, usually consisting of *Filer_Boot* and *Filer_Run* commands, plus any other required * commands, perhaps setting the options of *!Edit* using system variables.

It was always common practice to put the main resource applications at the root level of the main hard disc but as time went on these applications were added to again and again, with the *!Configure* application, *!ARMovie* and *!ARPlayer*, perhaps *!Printers*.

When Acorn released the Risc PC, they also presented a completely revised *!Boot*. It was no longer a single file, but now a directory structure incorporating a wide array of new ideas and old ones welded into a single unit, but it was designed only to work with RISC OS 3.5 or higher.

A number of resourceful individuals hacked it to run on earlier machines – there is little in it that actually depends on RISC OS 3.5 – and a completely original PD version was also released for the earlier machines.

The advantages of the new *!Boot* included the incorporation of all resources (*!System*, *!Scrap* and *!Fonts*) into one place and invisible to the user. Along with much more extensive start-up capabilities such as a directory to place items to be booted up before the Window Manager starts and another for things to be run once the Wimp is active.

As part of their latest development work Acorn have reworked *!Boot* to run on any RISC OS machine. Any Clan member can get hold of it from the CD-ROM containing the new Window Manager, the Acorn Internet software and Java.

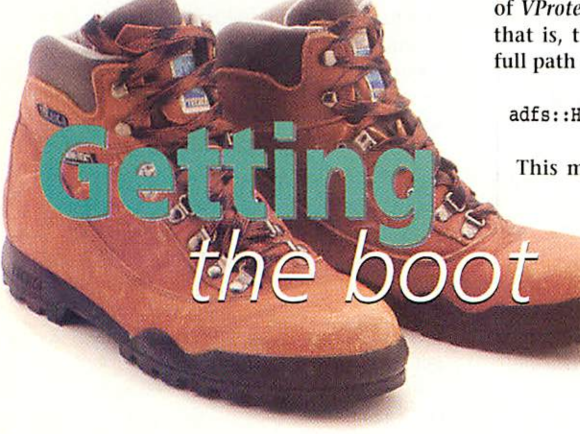
In the rest of this article we're going to take the latest *!Boot* apart piece by piece to see what it does and how you can use it to customise your machine. This description is generally the same for the original version of the *!Boot* structure, which itself had minor changes and corrections as time went on.

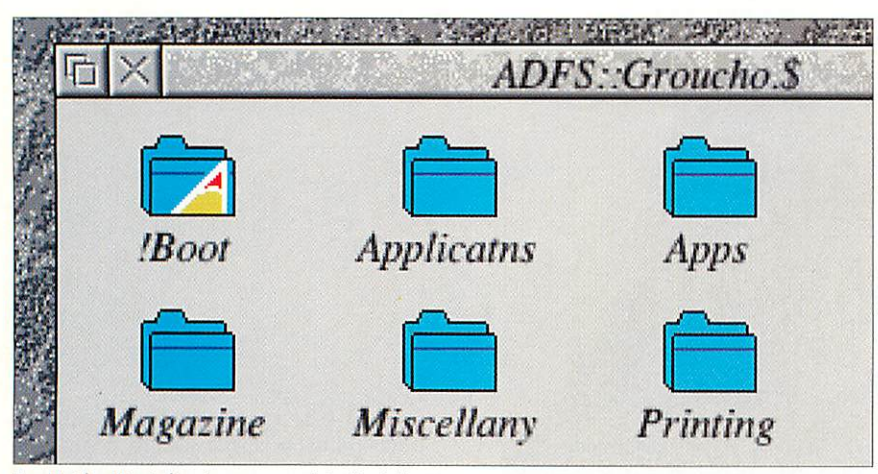
Getting switched on

For *!Boot* to function correctly your machine's main hard drive must be the default and it should have its boot option set up Run, this is a *OPT4,2 command. Of course all new machines have these set as standard.

When your machine is switched on or restarted it carries out all its hardware checks, memory checks, examining expansion slots and starting up ROM-based modules. It then checks the Shift key and the Boot/Noboot configuration option and if the proper combination is present goes to the default hard drive checks for the boot option and, if required, runs *!Boot*.

This sequence has barely changed from the first BBC Micro which demonstrates how ➤





Boot1: The !Boot directory saves a lot of window space

well designed it was from the very start.

Assuming that a *!Boot* structure (rather than a *!Boot* file is found) the Filer does what it always does when told to run an application, it locates the *!Run* file and executes it. There are no exceptions in RISC OS, all operations are consistent.

In *!Boot's !Run* file a **Boot$Dir** is set up, as it would be for any application, the *!Sprites* file is loaded and a check is made to ensure the operating system is the right version. From there a little utility is run which sets up various system variables for future use.

Then it sets up a special path variable called **Boot$Path** (used as **Boot:**) from this point on applications can refer to the contents of *!Boot* using this – without having to know the name of the hard disc, there will be some examples of this later on.

The final step is to check a special variable called **Boot$State**, this is set to "desktop" if the Window manager has already been run, at this point it hasn't so a utility file called *BootRun* is executed. If the Desktop is running and *!Boot* is double-clicked the other option is called and results in the *!Configure* application being run. As an aside, accessing **Boot$State** from the command line gives a result of "commands".

Into the boot

In a way which is reminiscent of the old Acorn games the first operations of *BootRun* are to disable the Break and Escape keys completely. Clearly it's not a good idea to interrupt the boot process.

The **Run$Path** variable is used whenever there is an attempt to execute a filename without a complete file path included. It defaults to the currently selected directory, then the currently selected library directory, within *BootRun* the main Boot library is added to the list.

The *!Boot* structure comes with *VProtect*, the module part of the Pineapple *!Killer* virus protection software. This is loaded next. For a short period of time RISC OS machines were shipped with the location of *VProtect* "hardwired" into the structure, that is, the location was specified with a full path name like this:

```
adfs::HardDisc4.$.!Boot.Utils.VProtect
```

This made it impossible to change the name of the hard disc without this line causing a fault. This has now been corrected but if you had this problem, you know why. The line now reads:

```
RMEnsure VProtect 2.37
RMLoad Boot:Utils.VProtect
```

This shows the use of the **Boot$Path** variable which means that changing the name of the hard disc does not affect the boot up.

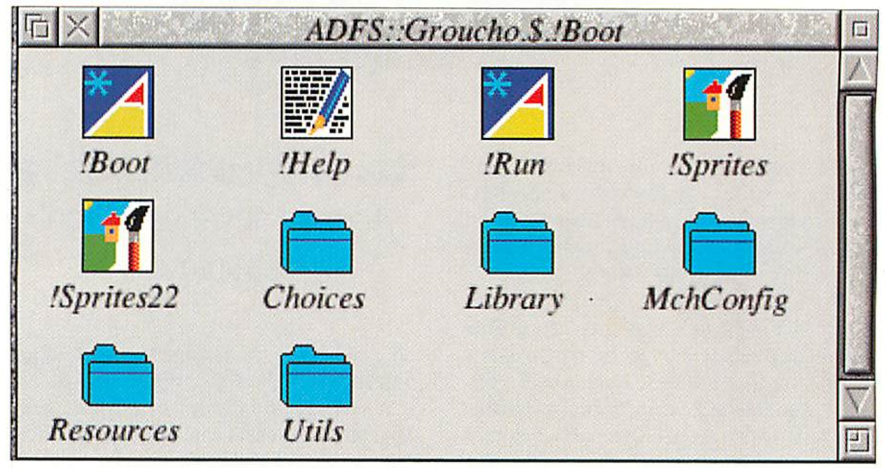
There's now a variable called **Boot$OSVersion** which provides the operating system version as a number (310, 350, 370 and so on) so that it is easy to compare it. Two modules are then loaded *CallASWI* for OSes less than 3.70 and *AppPatcher* for 3.70 or greater. The former provides needed functionality mainly for the networking software and the latter can be used to patch StrongARM-unaware applications.

The next couple of lines use a handy command line utility called *IfThere* this checks for the existence of a file object, and *if it's there* executes the following command. You can use this utility yourself in the *PreDesk* and *Desktop* files which we'll look at later on. The first of the two lines checks for the presence of a Territory application and runs it if there; the second looks for a set of CMOS settings and loads them, if there.

After that, apart from running a utility called *FreePool* on OSes of 3.50 or better, execution jumps to a file called *SetChoices*.

The right choice

Within the *Boot.Utils* directory are a set of



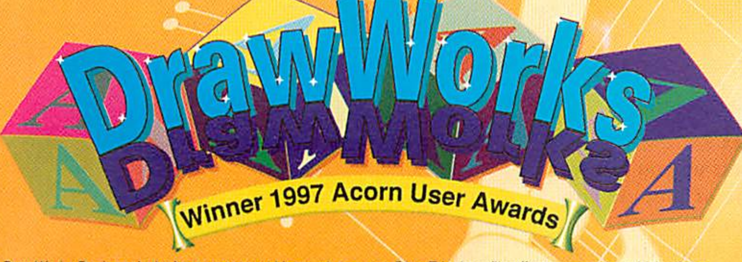
Boot2: The various files and directories in the !Boot directory

"hook" directories which contain applications, patches and so on, for each OS so far. The first thing that's done is to establish that there is a hook for the OS on the machine that's running, if not an error is generated. On the earlier boot structure there were hook files, but they simply generated errors.

The variable **Choices$Path** (used as **Choices:**) is employed when an application reads its choices from the hard disc. It is initially set as being within the correct hook directory. Next a utility is called which sets up a variable called **Boot$Remote**, this specifies whether the machine is actually booting up across a network.

If it is, a variable called **Boot$Unique** provides a unique identity for the ➤

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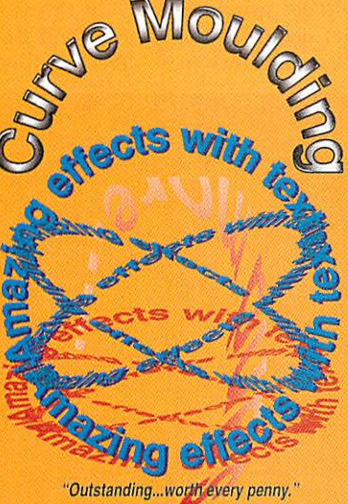
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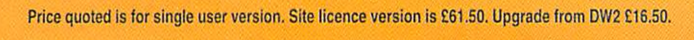
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machine allowing it to add a unique directory to **Choices$Path**, a directory on the server rather than on the local machine. If not **Choices$Path** just has the *!Boot.Choices* directory on the local machine added.

A **Choices$Dir** is also created with either the unique or local path and **Choices$Write** is set to exactly the same path. **Choices$Write** is used when an application saves its choices to hard disc. A final point here is that **Choices$Path** is set up in such a way that the hook directory is always checked last.

Although that's really the end of the choices this file also sets up some other variables: **BootResources$Dir** contains the Resource files and applications such as *!System*, *!Scrap*, *!Fonts*, *!Java*, *!Configure* and so on. Normally this is just the *!Boot.Resources* directory, however it checks for a "ResHook" which is a special Resources directory which contains the resources for a specific OS. So perhaps for RISC OS 4.91 there might be a special *!Boot.Resources.RO491Hook* directory.

A **BootResources$Path** is also set up, so you could access the resources like this:

```
BootResources:!System
```

Along with two directory variables **Boot$ToBeLoaded** and **Boot$ToBe Tasks**. The former is set to all the files and modules to be loaded or run before the Window Manager is initialised, the latter is for all those to be executed after its running. Both of these are located within the **Choices$Write** directory.

From here execution returns to the *BootRun* file.

On the other foot

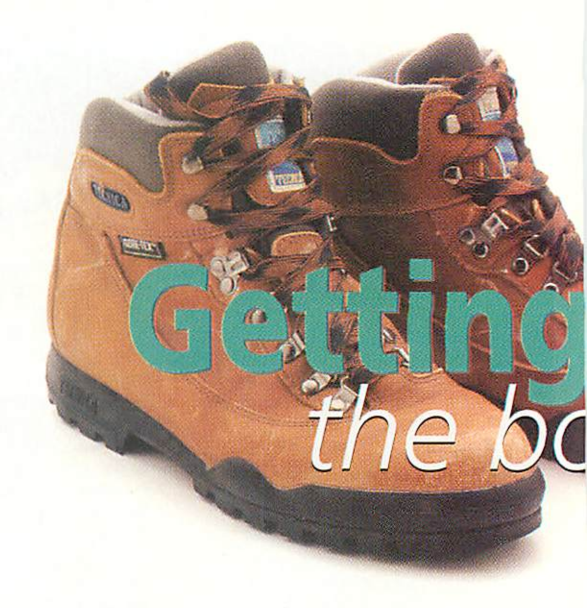
When your machine boots up you can see the full path of the file or module currently being executed on the screen. This trick is achieved using two Alias commands **BootLoad** and **BootRun**, these two just display the filename being called and then Load or Run before moving the cursor back up a line.

Next an Alias command, **BootObey**, is created which on RISC OS 3 or better loads an Obey file into memory before executing it, on RISC OS 2 – not that it will ever be run on it – it just does a normal Obey command. After this some **LoadType** aliases are set up, including one to ensure Obey files actually call **BootObey** instead and one to force sprite files to be "IconSprited" instead of issuing a *SLoad command. This means that if you have any sprite files you want loaded into the sprite pool you only have to put them into the *PreDesk* directory without any special commands.

The hourglass is switched on using a utility called *HOn*, and *!System* is booted which makes all the modules available.

Using the **Boot$Remote** variable the file checks to see whether the machine is being booted across a network, if it is a utility called *NewStack* is run. This file checks all the network modules currently loaded and replaces them with newer ones from *!System* even if it is on another machine on the network. It does this by creating a temporary RAM disc, copying the new modules into it, killing the old ones then running the new ones.

Now, at last, we come to the more user-configurable part of the *!Boot* structure. We will go into the exact details of the *PreDesktop* file and *PreDesk* directory in



the next section but for now we can see the three crucial lines:

```
BootObey Choices:Boot.PreDesktop
Repeat BootLoad
<Choices$Dir>.Boot.PreDesk -files
Repeat BootRun
<Choices$Dir>.Boot.PreDesk -directories
```

The first line executes the contents of the *PreDesktop* file, whether it is in the main *!Boot.Choices* directory, across the network in the unique directory or in the machine's hook directory.

The *Repeat* utility issues the same command (the first parameter) on every object within the specified directory (the second parameter) that matches the next parameter (if any, or more than one of -files, -directories, -applications, -commandtail, -tasks, or -type <type>).

In this case it issues **BootLoad** for all files and **BootRun** for all directories in *PreDesk*. It is at this stage that you see the

```
|Start Acorn WindowManager 3.91 installation
| ------------------------------------------
|
|
|     Nested Window Manager installation
|
|
| ------------------------------------------
|
|
| Load the Window Manager from !System, then ensure that we have all
| the necessary sprites etc present.
|
If "<BootResources$Path>"="" Then Set BootResources$Path Boot:Resources.
If "<Boot$OSVersion>"="3.50" Then SetMacro Run$Path ,%.,Boot:Library.
If "<Boot$OSVersion>"="3.50" Then Set Boot$OSVersion 350
If "<System$Path>"="" Then Run BootResources:!System
RMEnsure WindowManager 3.91 Set WindowManager$Path BootResources:Wimp.,Resources:$.Resources
.Wimp.
RMEnsure WindowManager 3.91 Run WindowManager:LoadWimp
If Boot$OSVersion < 350 Then IconSprites BootResources:Wimp.310Spr
|End
```

Boot3: One section of the new improved PreDesktop file

files popping up on screen.

Finally the *BootRun* file changes the various **LoadTypes** that it altered to what they should be, removes variables that are no longer required. Resets the Break and Escape keys and runs the file *Choices:Boot.Desktop*. This file should have a filetype of Desktop which causes the Window Manager to start up and execute the contents of this file.

ot

Before the desktop

Prior to going into detail about what happens when the Desktop starts up let's take a closer look at the *PreDesktop* file and *PreDesk* directory.

As described in the file itself the *PreDesktop* file is executed before the Desktop starts and each line is Obeyed. The file itself is split into sections, each one commencing and terminating with a line:

```
|Start ... any comments
|End
```

The idea is that specific applications can add sections to the file which are easily identifiable so that future versions which install themselves can spot the section which should be changed. For example, if the new Window Manager is installed on an older Risc PC you get a new section that begins:

```
|Start Acorn WindowManager 3.97
installation
```

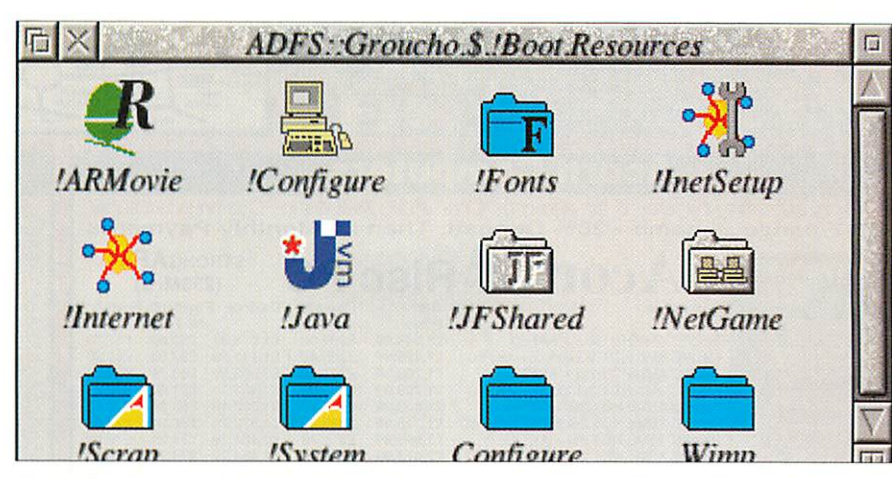
There's a section for creating Aliases, one for Paths, another for Options you can enter your own lines in these sections as you need.

In the ResApps section you can specify which applications you want to appear in the *Apps* directory on the iconbar. It's automatically set up to read all the ones in the *Apps* directory on your hard disc, and the ones in the correct hook directory.

Using the Boot:^ combination gives you the root directory on your machine from which you can access any part of the hard disc without having to know the name of it. If you hardwire a path that contains the name of the hard disc and you change that name, the boot sequence will fail.

At the end there's a miscellaneous section for anything else you might want to add. And if you don't know what to add, then you probably don't need to.

The *PreDesk* directory contains all those items that should be loaded before the Window Manager starts up, you'll find modules, obey files, utilities and directories here as well as the occasional item that looks like an application – it isn't. Filing systems are best added here, modules for CDFS, MacFS, DOSFS are typical examples. Individual files are dealt with first using the **BootLoad** instruction followed by directories and "applications" using **BootRun**. In the latter case the *!Run* file is located and executed. It is difficult to be specific about what's in here simply because it will depend on your particular machine, and the software you are running.



Boot4: The ever-expanding resources directory – better than having them all on the desktop

Through the nested window

The *Desktop* file (which is of type Desktop) is called at the end of the *BootRun* file and initiates the start-up of the desktop itself. This file is segregated in the same way as the *PreDesktop* file, into |Start-|End sections.

The first instruction is to execute the *!boot* file of the *!Boot* application. This might seem a little odd, in fact there's only one reason I can see for doing it: When the *!Boot* application is seen for the Filer the first time it's going to get executed anyway so it has to be done now.

Although short the *!Boot.!boot* file is not straightforward because there are two main situations under which it will be run: The first is as part of the standard start up sequence; the second is if Shift+Break has been pressed and the standard start-up is not executed, but then the hard disc is viewed and the Filer runs the *!Boot.!boot* file automatically.

In the first instance we want the control to get passed back to the Desktop file, in the second we want minimal set up plus an error message stating that the machine has not booted up fully and some things may not work.

This is checked using the **Boot$Dir** variable – which is created at the start of the *!Boot.!Run* file if that is executed. If it exists an alias called **BootEnd** is set up to kill execution of *!Boot.!boot*, otherwise it doesn't. Then the standard Boot variables are created and an instruction issued to Filer_Boot all the resource applications (*!System*, *!Scrap* and so on).

BootEnd is then used to complete execution and return to *Desktop* or continue to the error message. I have to admit to feeling there is a mistake here: The next operation in *Desktop* is to Filer_Boot all the resource applications, which is the same operation all over again. The *!Boot.!boot* file should be exited immediately that it has been determined that a normal start-up is occurring, rather than waiting until the end, using:

```
If "<Boot$Dir>"<>"" Then Obey
```

Anyway, continuing with the sequence, after booting all the resources, *Desktop* issues a Filer_Run command on every object in the *Choices:Boot.Tasks* directory, which is either another error since the command should use the **Boot$ToBeTasks** variable instead, or that variable is set incorrectly in the *SetChoices* file, as it's not used anywhere.

The next part of the section invites you to issue the necessary Filer_Run commands for any applications that you don't want in *Choices:Boot.Tasks* but you do want started up with the Desktop.

There are a couple more sections here, one for networks and the final *completion* section. This runs the HOff utility which switches off the hourglass, and sets the WimpSlot size for the next application, if you're using OS 3.50 or better.

The contents of the *Tasks* directory are all Filer_Run, so applications will be run and appear on the iconbar. programs like screensavers, desktop utilities, and so on, are best located here.

Next month I'll take a detailed look at the Resources directory, provide a *!Scrap* cleaning utility and describe how to speed up booting on your machine with a saved font cache. AU

Handy hint

Sometimes a program will crash leaving the hourglass in wait mode. Make a copy of the HOff utility in the Library directory so that if you're suffering from an irritating hourglass you can press F12, type HOff, press Return twice and you'll be back in the Desktop without the hourglass.

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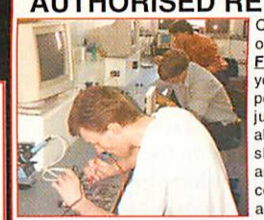
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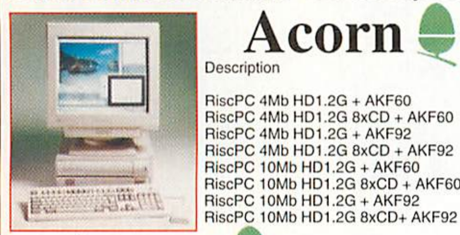


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Down@heart

Nobilangelo Ceramalus provides an eye-opener as to what's happening to Acorn in New Zealand

The new distribution structure for Acorn in New Zealand – in which Acorn NZ have ceased to exist and Samcor, a PC wholesaler, have been appointed as non-exclusive distributor – is having a bumpy ride.

Users already uneasy at the sudden change from Acorn NZ to an unknown PC company, were displeased by Samcor's early actions and the plunge in sales. Samcor's swift dismissal of Sharon Hayes, who they had transferred from Acorn NZ and appointed Acorn Dealer Manager only weeks before and their refusal to give a reason, was described by an Auckland User Group leader as 'a great shock.' Another said, 'It is stupid to sack the person who is friends with the all the people you want to be friends with.'

When Mike Cribben, Samcor's Education Manager, was asked why there were no longer two ex-Acorn NZers at Samcor – a clear reference to Hayes' mysterious dismissal – he said there were two, but admitted they were not those he had employed with fanfare at the changeover. David Campbell, Acorn NZ's support engineer, had been added, but on a retainer and per-repair commission, joining Ainsley Lewis, the Acorn Support Manager.

When pressed about Hayes' dismissal, Cribben said 'Times change, companies change.' Oddly, he also praised her 13 years' service to Acorn NZ, and said she was 'a dedicated support person.'

Acorn pulled out

Apple NZ seized on Samcor's appointment by telling the education market via *Computerworld NZ*, that Acorn 'had basically pulled out of New Zealand.' Their general manager, Zane Hall, signalled his company's intention to persuade schools to switch.

Cribben denied that Samcor had had discussions with Apple, but *Acorn User* has heard from more than one reliable source that they have, and that they expect to add Apple products to their armoury within months. He was adamant that Samcor, which was purely a PC distributor until they added Acorn on 1 April 1997, had not been suggesting to education sites that they switch to PCs.

'We believe schools are multi-platform, and should be,' he said. 'They should be looking at all three platforms.'

Asked to comment on speculation that Samcor was out to strip as many Acorn sites as possible and turn them into PC sites, he retorted 'Rubbish! We are committed to Acorn.' He said there was 'a lot of increased business, we have seen sales grow, and we are working to make schools more aware of Acorn.'

Sales growth?

When asked to specify the sales-growth, Cribben explained that there had been 'a dip' in sales in April, for which he blamed Acorn NZ, saying they 'had not done a great job before that but there had been steady growth since then.' So what he meant by 'growth' was only an increase from a serious dip?

Were his sales more than Acorn NZ's a year ago? He admitted they were not. So there was no real growth? At that he hung up. He later called back, apologised for hanging up, and reiterated his company's commitment to Acorn.

'We want to see Acorn's sales increase,' he said, then stated that Samcor would not sell as much this year as Acorn NZ did last year. When it was pointed out that fewer sales was not an 'increase,' he defended himself by saying that Acorn NZ had had a staff of 20.

'An uncertain environment'

He also said he was not criticising Acorn NZ's staff for their poor performance, but that in the months before the changeover they were 'in an uncertain environment.' But in an e-mail to Paul Hamlyn, the Principal of an Acorn-powered school at Te Puru near Thames, in New Zealand's North Island, his comments about Acorn NZ were most uncomplimentary.

'Not only did we inherit a loyal customer base and a number of very professional resellers,' he said. 'We also inherited major piles of dinosaur droppings from Acorn NZ.'

Laurence Hardwick, Acorn's vice president for International Support, on a flying visit to New Zealand, told *Acorn User* he doubted that those 'droppings' came from Acorn NZ's activities.

When Hardwick was asked about Samcor's prediction that sales would be down on last year's, he said, 'It would not be appropriate for him, as an outsider, to discuss the finer financial details.' He also said it was necessary to be realistic about trends, that computer-buying in education has ups and downs, and he cited his experience during a six-year stint as Acorn's Product Manager in Australia.

Hardwick conceded that Cribben's flow of self-contradictory statements do not inspire users' confidence. 'I did not employ him,' he said. 'And I did not employ him for his ability to talk to the Press and to generate PR in a positive way.' He said he would be discussing that subject with him.

Bullet-proof

Paul Hamlyn is far from confident about Acorn/Samcor, a stark contrast with how he feels about Acorn systems. 'The Acorn is an absolutely brilliant machine for schools,' he said. 'They are bullet-proof. Other machines fall to bits.'

His has been an Acorn school for many years, but now he is on the horns of a dilemma. The school has been wired for networking, but he does not know whether to go to Acorn or IBM. He said the Samcor situation makes him extremely concerned.

Acorn NZ turned over $10 million dollars the year before last, $5 million last year, but in the first month or so after Samcor took over sales plunged some 75 per cent.

'If they carry on declining at that rate, there is no point in continuing,' said Hamlyn. When he e-mailed his concerns to Chris Cox at Acorn UK, they were copied back to Cribben, whose reply did not allay them. Among other things he was told that Samcor do not believe in advertising. ➤









The old Acorn NZ office

➤ Cribben said they prefer to meet people face-to-face, and that he had had Acorn represented at 'a number of regional Principals' conferences.'

He must have forgotten he was e-mailing a Principal. Hamlyn was at a recent conference in Auckland, New Zealand's biggest city, where there were 700 Principals present. Samcor/Acorn were not (Samcor are based in Auckland). At another conference in Hamilton, 100km south, where there were 80 Principals, Samcor/Acorn were again absent. Hamlyn thinks many now see Acorn in the same category as Amstrad.

Wholesale only?

He thinks Cribben envisages being nothing but a wholesaler, and that the dealers will do everything, a vision Laurence Hardwick obviously shares because he said Acorn NZ spent six years strengthening the dealer-base, and that they can now do all the support. That, he explained, is why two ex-Acorn NZers could do the work of 20. 'Rubbish!' Hamlyn said. 'New Zealand dealers don't do it.'

A long-time Acorn user said he wondered if Samcor, being used to PCs, understand the support needed for a specialist machine. Hardwick, whose function is international customer support, said he would not be meeting all dealers during his two-and-a-half day stop in New Zealand, nor would he be talking to users. 'I have been doing some of that from the UK.'

He agreed that reaction to the change from Acorn NZ to Samcor had not been good, and admitted that they 'should have put more effort into saying that the changes were positive, but that that is a failing of PR rather than a failing of fact.'

The main thrust

He said Acorn were an education-computer company, but developing and licensing new technologies would now be their 'main thrust.' Asked why Acorn limited themselves to education, when their machines were so powerful and so many were used in other fields, he said that they were not 'expending effort on re-inventing the wheel' nor interested in competing with companies that already dominated their markets.

Would it matter to Acorn if they lost the computer market? 'Yes, I think so,' he said, 'and it would matter to the Acorn customers.' His message to New Zealand users was that 'we have every confidence in Samcor' and that the new regime 'would be good for everyone in the market.'

He said Mike Cribben had brought Acorn into his cost-structure, and the savings had enabled him to reduce prices. But he said he did not know whether the reductions would be seen by customers, or only by dealers in the form of better margins. However, *Acorn User* has learned that on the price list issued just two weeks earlier wholesale prices were raised. *Acorn User* asked Doug Pauling (Acorn NZ's former managing director), why they had appointed a company to sell Acorn products in which a vital manager makes worryingly contradictory remarks.

'It was the only company interested,' he said. Specifically of Cribben he said, 'I am concerned about the individual; I am not concerned about the company and their ability to do the job and make a profit.'

Asked why Acorn NZ was not fixed, instead of abandoning it and appointing Samcor in their place, he said, 'It was not fixable – within the guidelines that Acorn's board wanted, i.e., to make a profit.'

He doubts that five years from now Acorn will be manufacturing much. But he agreed wholeheartedly that Acorn should not forget where they came from, they should never forget that their products proved the technology they want for their 'main thrust' – and that you cannot say 'What wonderful branches we now have, let's pull out the roots.'

Product distribution

One New Zealand group, which want to remain anonymous in the interests of Acorn at large, were so disgusted with the way things were going with Samcor that they applied to become a second New Zealand distributor. Acorn turned them down on the grounds that they would not be able to pay the bills. They reapplied, saying they would pay for stock in advance. Acorn did not respond.

Acorn User has also spoken to another New Zealand organisation, well-respected and successful, that says if they were offered the product distribution they would take it on, because, to quote their CEO, 'We firmly believe in the quality and in the future of Acorn's advanced technology.'

And it gets worse...

While this article was still in preparation, the situation worsened. Samcor destroyed the last vestige of Acorn support in New Zealand by summarily sacking Ainsley Lewis, the Acorn Support Manager, just two months after sacking Sharon Hayes.

The reason: 'Sales of Acorn machines are way down, that they are not making enough money to afford to keep him on.' Samcor also said they did not want David Campbell doing support; he is paid to do repairs only. Acorn NZ has now been replaced by a mere box-mover.

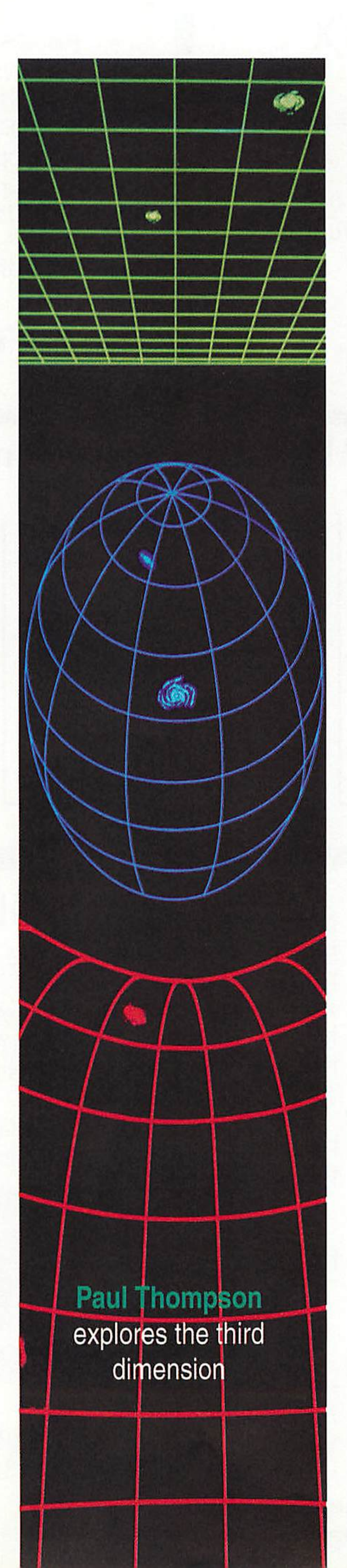
The UK response

Peter Bondar, Acorn's senior vice president of technologies and engineering, who clearly does not want to lose the New Zealand market, told *Acorn User* he was sending Ray Pinchard down-under in December to see things at first hand.

'Clearly, as usual, there are two sides to the issue,' he said, reacting to the above story. '[But] speaking personally, with the information I have I would have played it differently. We are trying to address this issue somewhat belatedly. I know that it is not a satisfactory response to offer, but given everything Acorn UK were trying to do, we had to let the guys down-under get on with it. With the benefit of hindsight we could have done better.' AU


"We could have done better"

A different dimension



Paul Thompson explores the third dimension

The first article in this series introduced the fundamental component of computer graphics, the triangle, and demonstrated some simple applications. What I neglected to describe was how to plot them to make them look like real objects, so in the next step of our journey into 3D realism we discover the z-coordinate, the technique of plotting realistic 3D images on a flat monitor, and a good use for triangles.

Maths: The essentials

As most people who program computers will agree, maths is rarely more interesting than programming itself. Unfortunately to make our game as realistic as possible, we must revert to mathematics as a description of optics and form.

The building block of 3D computer graphics is the transformation equation that takes a 3D model and produces the 2D coordinates we can pass to our triangle plotter, in a manner giving the impression of depth and form. The standard equation for this purpose is the perspective transformation, an equation that scales down distant objects in the same way as the old railway track example. The equations for transforming a 3D vector into screen coordinates are:

```
  screen_x = perspective_constant *
vector_x / vector_z
  screen_y = perspective_constant *
vector_y / vector_z
```

To see these equations in action see *Program1* on next month's disc.

Amazingly enough that's all we need for our first steps into 3D graphics. However, before we start pushing anything more complex than wireframe lines through them, we'll need to consider one more thing; the order in which we plot the data. Essentially there are two practical methods available to us:

The Painter's Algorithm: Painter's, being sensible people, paint things backwards. That is, they paint distant objects first so closer objects can conceal any occluded detail. If we follow this scheme, sorting our triangles by their z (distance) coordinate and plotting from far to near, we can be certain objects will be correctly displayed.

The Z-buffer Approach: This algorithm uses a block of memory, the Z-buffer, to store additional information, the z-coordinate, for each pixel in the display. This allows the sorting to be done at a pixel by pixel level rather than by each face of the object as with the painter's algorithm.

Whenever a pixel is to be plotted we first compare its z-coordinate with the value stored in the Z-buffer for that pixel. If the Z-buffer contains a lower value we know a pixel has been plotted at that screen coordinate with a lower (closer) z-coordinate and our current pixel should be obscured by it. If the value is greater then the previous pixel is further away and we should plot the new pixel, updating the value in the Z-buffer. Initially the Z-buffer is cleared to a convenient maximum z-



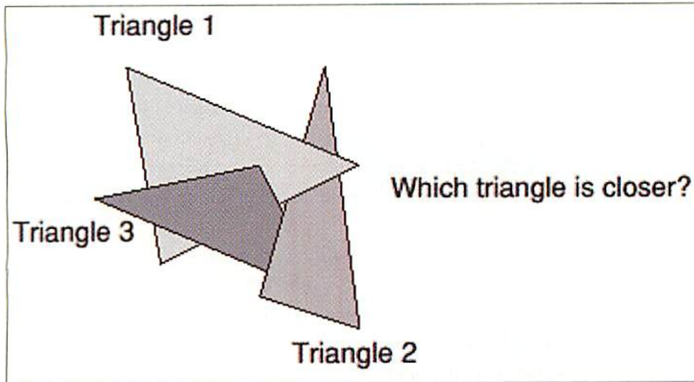



Figure I: When Painter's algorithm fails...

Triangle	Vertices
a	0,1,2
b	0,2,3
c	3,2,6
d	3,6,7
e	0,7,4
f	0,3,7

Figure II: Sharing vertices on a cube

value. Of the two methods, the first is more generally used for real-time applications, the second lending its superior accuracy to ray tracers and other, higher quality, needs.

Although the painter's algorithm requires a sort before plotting can commence, and this in turn can lead to inaccuracies (see Figure I), the lack of pixel by pixel testing, and the intrinsic interpolation of the z-coordinate make it far more applicable to the type of speed-critical graphics used in games and demos.

For an example of the Z-buffer technique put to good use, see *Pipes* on the (next) disc, but for our purposes, we'll stick to the painter's method. More information on Pipes and some real-time applications of the Z-buffer algorithm is in the panel.

We now need just one more trick before we can start 3D rendering, this one involving the way we build our models. As described in the previous article, our models will be constructed from a mesh of triangles, and since our models are solid, approximately half of the triangles, generally those on the far side of the object, will be facing away from us.

We can capitalise on this fact since these triangles will certainly be hidden by those facing us, and plotting triangles that face away from us would mean plotting the inside of the object, and that's somewhat less than 100 per cent sensible.

To cut down on these faces before sending them to the triangle plotter, we can make use of some more maths, and a trick at the object design stage, to reduce the workload considerably.

The trick is to make sure the vertices of the triangle are always defined in a clockwise order when that triangle is facing you. That way, when viewed from the back, the vertices will appear to be in an anti-clockwise order, and using a simple equation we can eliminate them.

The equation we use to test this is derived from the cross product, and goes like this:

If (Bx*Cy + Cx*Ay + Ax*By) > (Bx*Ay + Cx*By + Ax*Cy) then the vertices are anti-clockwise.

Another improvement we can gain at the modelling stage is to note many faces of the object will have vertices in common with other faces.

We have already seen the transformation from 3D to 2D is somewhat expensive computationally as it involves a divide, so we should transform these common vertices only once.

An efficient scheme for this is to separate the vertex information from the face information, so all the vertices can be transformed in one pass with the faces referencing the transformed coordinates indirectly.

In other words the information associated with each face will be of the form of references to vertex numbers. See Figure II for a visual description of this, noting the order of the vertex numbers for each triangle is clockwise.

The plotting algorithm is now ready (in pseudo-BASIC):

```
REM Transform the vertex coordinates
FOR vertex%=1 TO vertices%
  screen_x%(vertex%) = persp% *
v_x(vertex%) / v_z(vertex%)
  screen_y%(vertex%) = persp% *
v_y(vertex%) / v_z(vertex%)
NEXT

REM Cull backfacing faces
face_to_plot%=0
FOR face%=1 TO faces%
  REM Check for clockwise condition
  IF
screen_x%(face%(face%,1))*screen_y%(fa
ce%(face%,2) blah blah THEN

face_plot%(face_to_plot%)=face%:face_t
o_plot%+=1
  NEXT

  REM Sort faces in face_to_plot array
by Z-coordinates
  PROCsort_faces
  REM Plot the sorted faces
  FOR face%=1 TO face_to_plot%
    PROCtriangle(face_plot%(face%))
  NEXT
```

Rotating vertices

A static object rendering routine is fairly pointless without the ability to move around the object at will. Most GCSE/O Level geometry texts will cover the operations necessary to spin points around various axes, commonly using matrices, but always fairly basic bits of trigonometry. Considering two dimensional transformations are somewhat less taxing to visualise (especially using !Draw), we'll start with those:

In Figure III, we can see the sort of vertex rotations necessary. The second box has been rotated by 30 degrees anti-clockwise around the Cartesian origin. The original set of points (0,0), (0,3), (6,3) and (6,0) are mapped onto the coordinates of the second rectangle. The actual calculations as featured in the diagram are:

```
New_X = Old_X.cos(angle) - Old_Y.sin(angle)
New_Y = Old_Y.sin(angle) + Old_Y.cos(angle)
```

Rewriting these equations into the standard column vectors and matrix forms, we can develop a transformation matrix to multiply our initial coordinates by to rotate to any desired angle:

➤

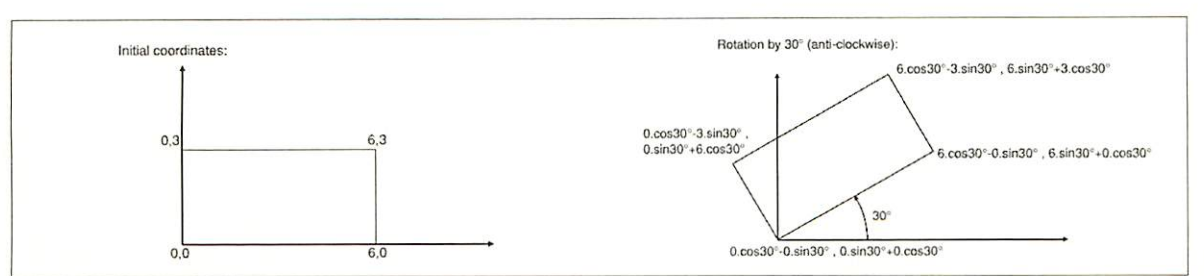


Figure III

$$\begin{bmatrix} New_X \\ New_Y \end{bmatrix} = \begin{bmatrix} \cos(angle) & -\sin(angle) \\ \sin(angle) & \cos(angle) \end{bmatrix} \cdot \begin{bmatrix} Old_X \\ Old_Y \end{bmatrix}$$

Extending this to rotate around a particular axis of 3-space is a case of picking your axis and inputting the two dependent components of the vector into the equation. Alternatively use one of the following 3x3 matrices:

$$Rx = \begin{bmatrix} 1 & 0 & 0 \\ 0 & \cos A & \sin A \\ 0 & -\sin A & \cos A \end{bmatrix}$$

$$Ry = \begin{bmatrix} \cos A & 0 & -\sin A \\ 0 & 1 & 0 \\ \sin A & 0 & \cos A \end{bmatrix}$$

$$Rz = \begin{bmatrix} \cos A & \sin A & 0 \\ -\sin A & \cos A & 0 \\ 0 & 0 & 1 \end{bmatrix}$$

To rotate by angle A around axis X we would use matrix 'Rx' as follows:

$$\begin{bmatrix} New_X \\ New_Y \\ New_Z \end{bmatrix} = \begin{bmatrix} 1 & 0 & 0 \\ 0 & \cos A & \sin 0 \\ 0 & -\sin A & \cos 0 \end{bmatrix} \cdot \begin{bmatrix} Old_X \\ Old_Y \\ Old_Z \end{bmatrix}$$

We can chain rotation matrices together to rotate first around one axis then another. For example rotating around the X axis then the Y axis (noting carefully the order of the matrices in the equation):

$$\overline{New} = Ry \cdot Rx \cdot \overline{Old}$$

Unfortunately, the order of changes will affect the resulting coordinates. Swapping the Rx and Ry in the above equation would lead to a different rotation – try experimenting with a handy solved Rubix cube.

Sometimes, rotating around one axis is sufficient for the needs of a game, in which case multiplying by all those spare 0's and 1's would be inefficient. Reverting to the first set of equations is a faster calculation, and remember, all the vertices to be considered must be rotated before any triangle plotting, so speed is critical.

```
543      871      712      216
675      712      216      543
654      543      543      654
987      654      654      675
684  =>  684  =>  871  =>  684
871      675      675      712
712      216      684      871
216      987      987      898
898      898      898      987
          ^        ^        ^
          |        |        |
```

Figure IV: The operation of radix sort on a list of nine 3 digit numbers. The first column is the input, the remaining columns show successive sorts on increasingly significant digit positions (indicated by the vertical arrow).

Pipes and the Z-buffer

Using the Z-buffer algorithm requires a z-coordinate for each pixel of the plotted triangle to be known. Recalling from the first article our interpolation scheme, and conveniently forgetting any inaccuracies this leads to, we can simply feed the z-coordinate of each vertex into the triangle plotter and linearly interpolate them in the same manner as the colour and texture data. Storing these values in the Z-buffer lets us know each pixel's z-coordinate for simple comparison and updating.

Although at first the Z-buffer method seems slow and superfluous to our real-time requirements, its pixel by pixel sorting scheme can be put to effective uses. One such area where Z-buffering occurs as a common trick is for mixing two diverse graphical techniques into one coherent graphics engine, for example mixing voxel landscapes with polygon vector objects.

There are two ways this could be achieved depending on the ordering of the routines, but in most cases it is advantageous to plot the vector models first, storing the z-coordinate of each pixel used in the Z-buffer, followed by a voxel landscape routine that checks each pixel first before obscuring any distant pixels. Such a mix of techniques was pioneered by the PC game *Comanche*, and closer to home, the Acorn demo *Fishtank2* written by, ahem, me.

Efficient sorting

One thing I have neglected so far is the sorting component of our plotting algorithm. For certain objects, namely those that are entirely convex, no sorting of faces is necessary, since, by the definition of the convex property, facets facing the viewer can only conceal those facing away. Not all shapes satisfy the convex property so for the sake of generality a discussion of sorting algorithms would be valuable.

Turning to a large volume weighing down my book shelf entitled *Algorithms and data complexity* I find a term common to algorithmic analysis called O notation (generally pronounced "big oh"). Essentially this is a means of describing the growth of a function in relation to a property of that function. For rating sorting algorithms we would like to know the growth of the time requirement with respect to the number of elements sorted.

Conveniently leaving the complex proofs on the shelf we can compare the growth of theoretical average run times (time complexity) of some sorting algorithms and build a table such as:

Algorithm	Average case time complexity
Bubble sort	O(n*n)
Insertion sort	O(n*n)
Mergesort	O(n*log n)
Heapsort	O(n*log n)
Quicksort	O(n*log n)
Radix sort	O(n)

Please note this table simply describes the growth of the algorithms execution time with regard to the input size. O notation ignores linear constants so although insertion sort has the same time complexity as bubble sort, insertion sort will actually run faster. That both are O(n*n) really just means if the input size doubles, the execution time quadruples (4=2*2), regardless of the actual time involved.

Radix sort has recently become popular in game engines and demos particularly since it is eminently applicable to the type data commonly processed. It out-performs quicksort and attains a theoretically perfect time complexity by doing away with the need to compare elements and limiting its use to numerical data. This is fine since we'll be sorting distance data not alphabetic data.

Actually radix sort functions as a sort within a sort. Figure IV demonstrates the operation of the first stage. Starting with the least significant digit, we perform a stable sort (a sort that outputs equal elements in an identical order as they appeared in the input) on that digit. We then sort again on the next least significant digit until all digits have been sorted.

The type of stable sort performed at each step is up to us, but to achieve the time complexity detailed above we should use a non-comparison sort such as the counting sort. Without wasting space detailing the algorithm in too much detail, the counting sort essentially calculates the array position of each element in the input by counting the number of each element.

It is then a simple matter of inserting the elements of the input in the correct locations of the output. The efficiency of counting sort depends on the size of the range of possible input values, or from our point of view the size of each radix. We therefore reach a compromise between the number digits in our data (loops through the first stage of the sort) and the number of values of each digit (range of inputs to the counting sort). Without a rigorous proof I'd suggest a radix size of 5 bits as roughly optimal for our needs.

See the highly commented *Program2* for the functioning sort algorithm.

Plotting in action

We now have all the components of our first generation general purpose object plotter. We know how to represent objects, how to rotate and transform their coordinates into realistic impressions of three dimensions and we can plot their segments in the correct order.

In the next article the complexities of semi-realistic lighting models will be covered to give our objects a more authentic appearance. For the time being, experiment with Program 3 on the disc to see what we can accomplish already. AU



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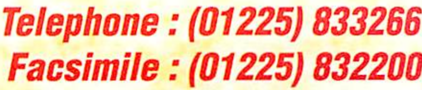
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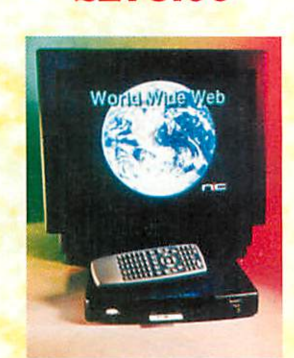
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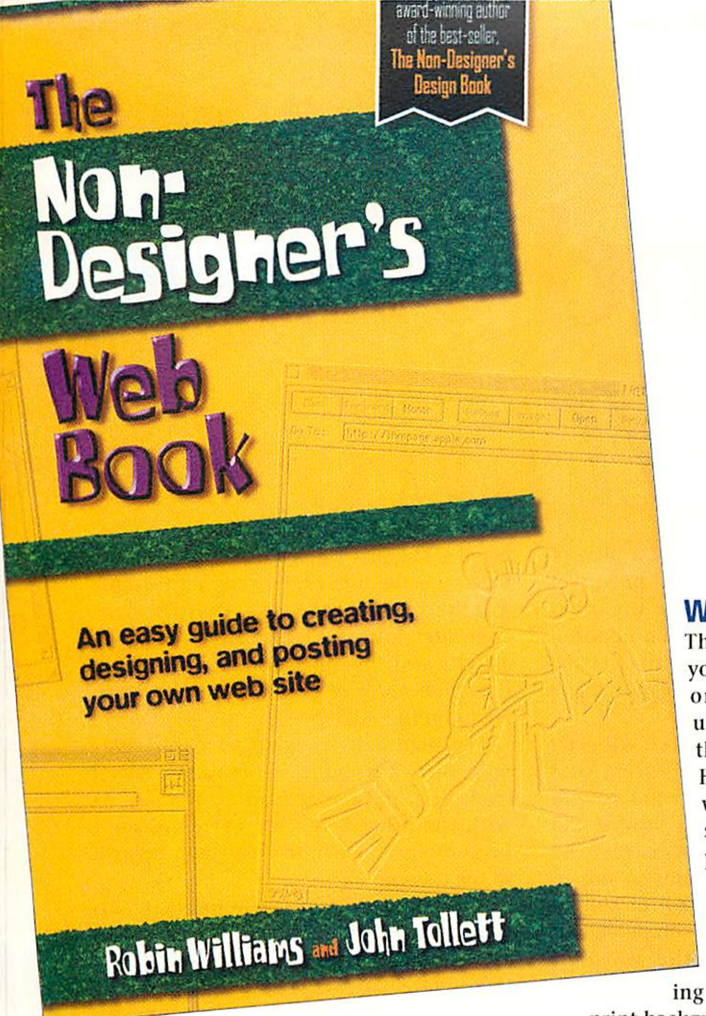


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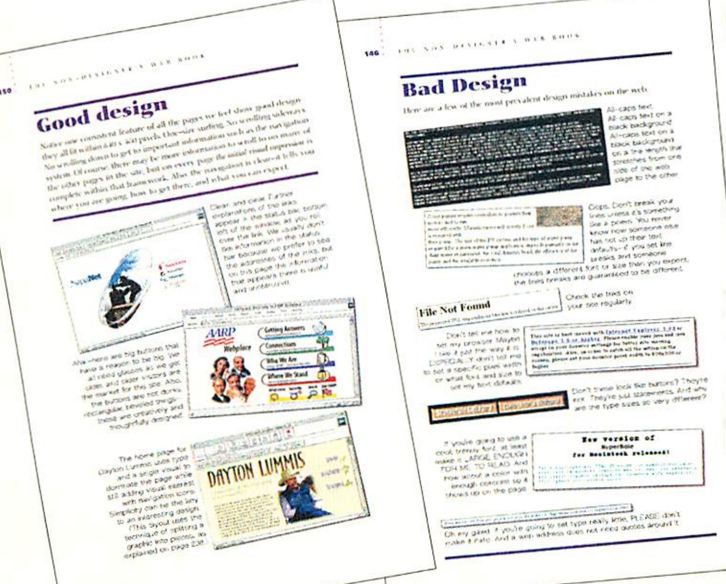


Basic web design

David Matthewman looks at a book that helps would-be Web designers

The Web is a marvellous place. For a start, it's cheap. You don't need very much money to buy yourself a small website and announce yourself to the world – in fact, there are a number of free ones. Trouble is, you don't need any design experience, either.

Web designers tend to be either graphic designers who don't know much about the Internet, or programmers who know little about design. Books about the Web tend to fall into the same trap, so it's refreshing to find one that doesn't. The outstanding impression from reading *The Non-Designer's Web Book* is one of two authors who *really* know their stuff. As one of the authors, Robin Williams, has already received plaudits for her book *The Non-Designer's Design Book*, this should come as no surprise.



What's in the book?

The book starts out by leading you through some of the jargon on the Web. This section is under 20 pages, but is better than many five times the size. Having got the basics out of the way, the book moves on to search engines, Web pages and planning a site – all useful topics for the budding designer.

The chapter comparing print publishing with Web publishing is very illuminating for readers with a traditional print background, especially since it shows the advantages of both media rather than coming down heavily on one side or the other.

The three chapters on design principles are the meat of the book for me, since my background is in engineering and journalism rather than design. Most Web designers will learn a lot from these chapters alone. Best of all, the writers never forget that it's the Web that they're writing about, so you're never exhorted to do something that just doesn't work on the Web.

The next chapters on graphics, typography and advanced tips show you how to put some of your newly-acquired design knowledge into practice. The book ends by telling you how to test, upload and register your site – aspects of Web design that are very important, but often neglected by Web books. Interestingly enough, it hardly mentions raw HTML. The book assumes that you either have access to an HTML editor, or are already fluent in HTML (or read my series in *Acorn User*).

This actually leaves it free to concentrate on the design issues on the Web; the book's just under 300 pages, but without the padding of an HTML tutorial, every page packs a punch.

The Acorn platform

In common with every other Web book, *The Non-Designer's Web Book* is an Acorn-free area. I have the impression that the authors are Mac fans, as the majority of the screenshots are taken from a Mac with Windows screenshots making up most of the rest.

However, the authors are fully aware that there are other platforms out there, and the book is rarely platform-specific. In the rare occasions that it is (for instance, when describing operations in *Photoshop*), the instructions are usually adaptable for use with *Photodesk* or *Studio 24*.

Structure

The structure of the book is especially good. Each chapter ends with a quick quiz designed to make sure that you've understood the chapter. The book is well-illustrated; whenever the authors write about bad design, there's an example with a complementary example of how the design could be improved.

The best thing about the book is the variety of website styles demonstrated. Instead of having a particular dogma, the authors are interested simply in *good* design, whether the website be graphical, text-heavy, interactive using forms, or just plain wacky. Robin Williams and John Tollett aren't interested in favouring any of these styles over another – they're just interested in making whatever style you design in look better.

There's a couple of areas where I disagree with the authors, but I'd be surprised if there weren't, and it's mostly down to a difference in approach. There were more areas where I was applauding what the book was saying, and many others where the book taught me something new.

There are plenty of books to teach you how to write HTML or how to create Web graphics. There are very few that teach good Web design. In fact, I'm not sure there's actually another book like this; if you're into Web design, buy it. AU

Product details

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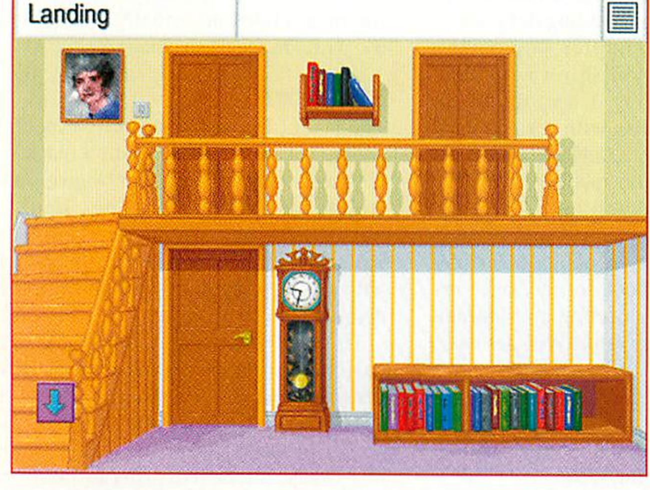
Geoff Preston discovers there's lots going on at Albert's house

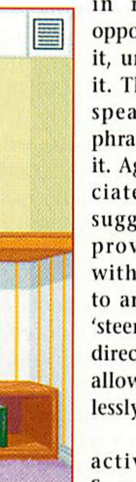
After reviewing the brilliant *Rainbow's Edge* CD-ROMs by RESOURCE, I jumped at the opportunity to review their latest creation – *Albert's House.*

Albert, it transpires, is a mouse who has taken up residence in a picturesque little cottage in the country. The program is a series of activities for pre-school and Key Stage 1 children, designed to enrich topic work undertaken on the theme of My House.

The first activity is a tour of the house. There's not much the user can do here other than click on the pointers or doors to move from room to room, and click on doors and drawers to open them to see what's inside. There are some suggestions for related activities, but I think a good exercise here might be to draw a plan of the house to get a better mental picture of where each room is relative to the other rooms. If nothing else, this is an opportunity to wander around and marvel at the quality of the graphics which must have taken untold hours to produce.

The second activity, Search Albert's house is similar to the first, except that clicking on objects displays a window with the name of the object clearly printed and in most cases the opportunity to look in it, under it or behind it. The computer will speak the word or phrase by clicking on it. Again, several associated activities are suggested including providing children with some questions to answer which will 'steer' them in specific directions rather than allowing them to aimlessly wander.





The third activity, Hide and Squeak, is for two people. The first finds a place for Albert to hide, and the other then searches for him. Another version of this activity has the computer hiding Albert. This is a clever activity which features a meter to tell you how 'hot' or 'cold' you are – how near you are to finding Albert.

The final activity is an adventure type program in which the user must save Albert from getting pounced on by the cat. As with the other activities, there are some suggestions about how they could be used in the classroom.

Additional printed classroom materials to support *Albert's House* in the classroom are available from RESOURCE. They are free on receipt of an A4 SAE.

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- BBC Model B computer with Wordwise Plus, Interword and Teletext, d/d disc drive, monochrome monitor 11in, Epson LX80 dot matrix printer, 7 d/d discs (5.25). Screen dump program Dumpmaster on disc. Manuals, user guides and books including Practical Interfacing with the BBC Micro, Exploiting BBC BASIC and An Introduction to programming the BBC Model B Micro. Offers please. Tel: 01723 368111 (work) or 01723 371651 (Home, ansaphone, fax) for more details. Can be collected from London if required.
- Risc PC StrongARM 1x16Mb + 1Mb VRAM, 486/33 PC card, 1Gb hard disc and AKF50 plus ArtWorks, Impression Publisher and Eureka 3. Dfl 2.850. HOLLAND Tel: (0316)282411, e-mail m.vaneck@insad.nl
- Casio QV-100 digital camera with Acorn !PhotoQV software, leads and Mains Adapter. 6 months old. Cost £516 Perfect. £375 incl. P & P. Tel: Richard on Hereford (01432) 263 74 or e-mail whincup@agonet.co.uk
- Risc PC 600. 16Mb RAM. 1Mb VRAM. 210HD. CD-ROM. 486 card. AFK60 monitor. Impression Style. Printer. Manuals etc. Offers. Tel (01460) 240075 (Somerset).
- Acorn 32-bit co-processor for BBC-B with single and double precision BASIC, Fortran77, Pascal, C, Lisp, all manuals. Also BBC-B and 40/80 track dual drive. Offers? Tel: 015395 32657 (Cumbria).
- For sale: A5000 with FPA, 4/80Mb, AKF18 monitor, keyboard, mouse, manuals, PCEmulator, £450. 210Mb IDE, £50. Tel: 01344 411252 or e-mail: roy.cotgrove@era.co.uk
- PocketBook2, Games3a, Data Logging Equipment (LogIT), Printer cable, extra 512K SSD disc. New: £48. Will sell £195. Tel: 0181 568 1633 or e-mail: tomislav@temppubs.demon.co.uk
- Wanted urgently: Cheap A5000 plus monitor, mouse, keyboard etc. Must be in fair condition with manuals. Call James on 0181-950 3085 (Watford) or e-mail qtemonster@aol.com
- 2 BBC B computer, disc drives, monitor, manuals, software, joysticks, books, other accessories. Free to good home. Tel: Warrington 01925 812908.
- Archimedes computer model 420/1, running RISC OS 3.1, 40Mb internal hard disc, 2Mb of memory. RGB colour monitor. Parallel and serial port. £300. Tel: 01704 220536.



Twisting the knife?

I've lost count of the number of multimedia authoring tools available for Acorn computers. After *Genesis* came a whole range including *Magpie*, *Optima*, *Ultima* and *Hyperstudio*, to name but a few. They all do more or less the same thing: Enable the user to create linked pages containing an assortment of text, graphics and sounds.

Of them all, Anglia's *Key* and TAG's *Hyperstudio* appear to be the most versatile because they can create multi-platform multimedia. The programs are available in either a PC, Mac or Acorn format and will create multimedia presentations which can be run on any of these machines, regardless of the source platform. This means that the home user (and indeed the professional) can create quality multimedia productions which can be used on any computer.



QA Photos Ltd

So where's this leading? Last week I received a CD through the post. The specifications on the back I knew almost by heart. "This CD requires a PC running 486 processor ..... or a Macintosh running ......" Not suprisingly, the word Acorn didn't appear. So I put it into my Risc PC running Windows 95 and ran the software. Called *The Jubilee Line*, it's a multimedia production about the building of London Underground's Jubilee line extension. Although a little less than the usual polished production that has been the hallmark of companies such as Anglia and TAG, it's a very informative CD with lots of interesting bits and pieces.

It costs £15.99 plus VAT and was produced with the help of some children from Clapton School in London. It is appropriate for children from seven years upwards and uses video footage as well as still photographs to bring the world of construction into the classroom.

As I closed down the program, I was amazed to see the copyright legend which appeared in the centre of the screen, "Produced using TAG Development's Hyperstudio"!

The producers appear to have elected to use a three platform authoring tool to produce a two platform resource. Why no Acorn version? Well apparently there will be a triple platform version shortly but initially this product will only run under Windows or on a Macintosh. What a pity Acorn users continue to be either left out or simply marginalised as an afterthought.

Still, the Acorn version is worth having and should be available by the time you read this. It's being distributed by TAG Developments who may be contacted on 0800 591262.

Simon Hosler returns

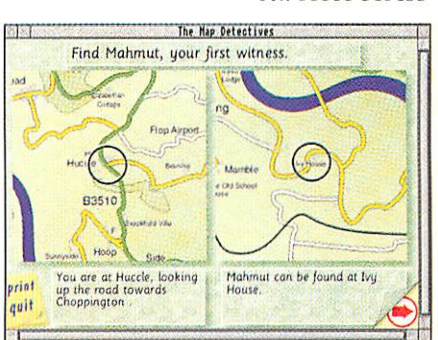
Hands up all those who have not heard of Simon Hosler. Well, you might be forgiven for your ignorance as this is not a man noted for generating a high profile. Although he is almost anonymous, his work certainly is not. He is the author of a huge number of Sherston titles including the *Arcventure* series which was (and still is) popular in primary schools.

His latest piece, co-authored with Elisabeth Johnson, is *The Map Detectives*, again published by Sherston.

The Map Detectives is aimed at 8-13 year olds and is a triple platform CD-ROM (no, I'm not rubbing it in). This stimulating program teaches geography and mapping skills as children try to solve a series of baffling burglaries at Hartley Manor.

Apparently a thief has stolen several valuable objects from the manor and Lady Hartley doesn't have an inventory. She must navigate her way around a cycling map of the County of Sherston, the London Underground Map and a walking map of the Rainbow Hills. The software includes all the high quality resources you'd expect from Sherston and Simon – photographs, animation and sound. Excellent!

Sherston
Tel: 01666 840433



Activity sheets

I'm rarely impressed with activity sheets, they are too frequently a cop-out for the teacher who's had a rough night. (I put videos into the same category.) Occasionally something comes along which catches my eye during its inevitable flight between my hand and the nearest waste paper basket.

Produced by Cricket Publishing, these packs are sets of homework activity sheets for Key Stage 3 pupils. Pack 1 contains 20 activity sheets aimed at Year 7 (11 year olds), Pack 2 is a further 20 sheets for Year 8 and Pack 3 contains 25 activities for Year 9.

They contain some really useful and fun exercises that kids will love doing. They should be tied in to class work where possible, and will give some excellent background to the practical work done during school time in the IT room.

The packs cost £22 each (£23.59 for Pack 3) and are available from Cricket Publishing who may be contacted on 0181-889 8986.

Contacting me

You can contact the Education page by writing to me, Geoff Preston at *Acorn User*, IDG Media, Media House, Adlington Park, Macclesfield SK10 4NP or by e-mail to: aueduc@idg.co.uk

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NEW FEATURES

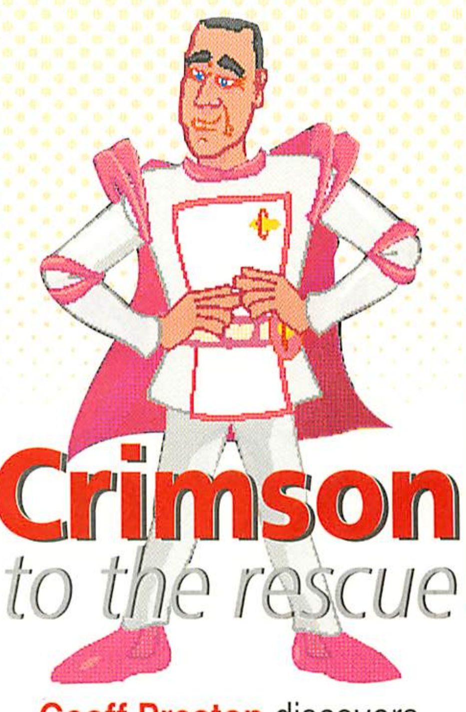
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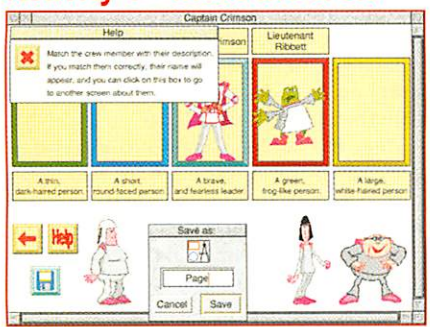
Crimson to the rescue

Geoff Preston discovers how Captain Crimson can help with reading skills

This software has been designed and developed by Logotron to complement the BBC Schools Television series, *Look and Read Captain Crimson*, but even if you don't use the TV programme, the software will provide some very valuable exercises for Key Stage 1 pupils.

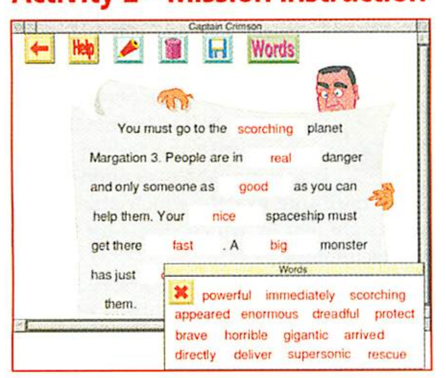
All the activities use Captain Crimson's adventures in space as the backdrop and are designed to develop reading and composition skills. The software contains seven activities which may be explored in any order and can be used independently of the television programme.

Activity 1 – Meet the crew



This is a clever piece of software which requires the user to read a description of a member of the crew and choose the person who best fits that description. The pupil then drags the character into the appropriate box over the description. Once the exercise is complete, a printout of the screen can be produced giving a record of the work.

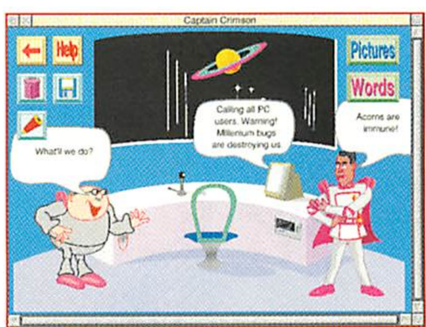
Activity 2 – Mission instruction



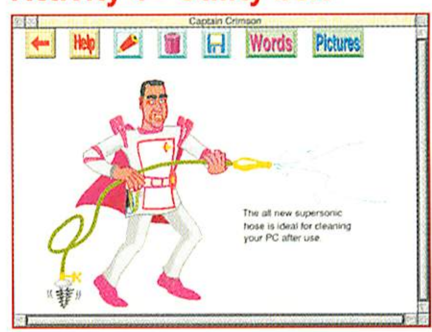
Whenever I review a program such as this with several activities, there is always one that stands head and shoulders above the rest. For me, this is it and one which I would like to see developed for older students. Captain Crimson is holding the instructions which are written in a fairly bland way. What you have to do is select a word in red and put it in the bin, and then select a better word to fit into the space. In the picture, I've replaced the word 'hot' for 'scorching'.

Activity 3 – Action stations

This activity reminded me of some of Logotron's *Book Project* software. The idea is sound enough, but in practice, I found it quite difficult. Fitting in the characters is achieved by clicking on them and dragging into position. Moving the mouse pointer side to side will flip the image and so the character can be made to face either way. The speech bubbles are also fairly easy to placed, but adding text to them is, I found, quite a trial. Personally I would suggest printing the picture with just the characters and speech bubbles in place, and handwriting the text.

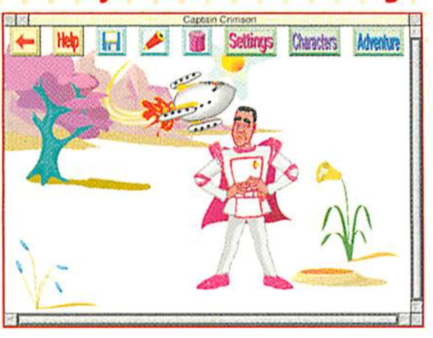


Activity 4 – Utility belt



Again this idea is sound, but I'm not convinced about the benefits. Basically you have to equip Captain Crimson with a tool for his belt and then describe how he might use it. The problem is that text is entered only in single lines rather than wordprocessing several lines. I feel that it might be better to enter a description on a proper wordprocessor and just use this activity to complete the picture.

Activity 5 – Cartoon making



This is actually very similar to Activity 3 in so far as pictures are placed and text added. The main difference is that here you start with a blank page and add background scenery first. The idea is to produce a strip cartoon but, as with Activity 3, placing text inside speech bubbles is not easy.

I think it might be better to use the pictures to illustrate a wordprocessed story. Producing a number of different pictures to illustrate a story can be a time consuming exercise and it will certainly be better to do the work in small groups rather than individually.

The manual offers some useful guidance especially emphasising the need for careful planning before going to the computer. In this respect it might be sensible to begin by printing out all of the elements so the children can see exactly what is available to them.

Activity 6 – Unscramble an adventure

This activity opens with a screen containing six windows into which the pupil must fit six pictures and then write a story about it. The pictures can be entered in any order and it's up to the child to decide what the picture is about. This is yet another excellent activity which could be used very successfully with older students.

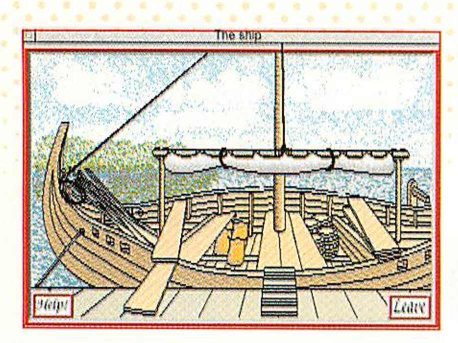
Activity 7 – Design a planet

Just as each multi-activity pack I've ever seen has a star, so it also has what might best be described as a stocking filler. If this package contains such a element, this I feel is it. Create a lunar landscape and write a story about it.

At £27 this pack is well worth buying. Of the seven activities, the second alone almost justifies the price.

Product details

Product:	Captain Crimson
Price:	£27
Supplier:	Logotron
Address:	124 Cambridge Science Park, Milton Road, Cambridge, CB4 4ZS
Tel:	01223 425558
Fax:	01223 425349
E-mail:	info@logo.com
WWW:	http://www.logo.com

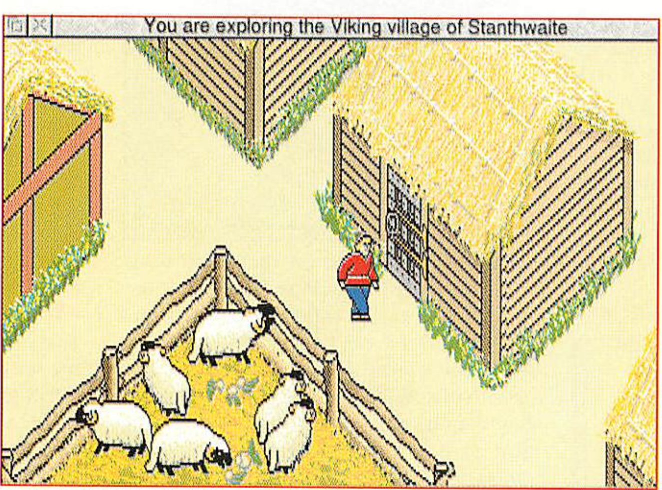


Live and learn like a Viking

Geoff Preston looks at another software title developed by Logotron and BBC Education designed to compliment the BBC Schools Television series, Zig Zag

Like the previous two titles, *Romans* and *Anglo-Saxons*, *Vikings* is for use in Key Stage 2 History. For those unfamiliar with the National Curriculum Orders, all but one subject states that *"...children should be given the opportunity of developing and applying their Information Technology skills in their study of ....."*. In the 5-14 guidelines for teaching in Scotland, teachers are advised that *"... children use computers to support their work ..."*

In this simulation, an historical environment has been created based on the period in history when the Vikings settled in Britain. The site is not an absolutely accurate copy of one archaeological site, but is based on archaeological evidence gathered from several sites.



Explore

Pupils can explore the environment by moving a child guide around. You need to be quite accurate, but if you begin clicking and holding either the left or right mouse button while the pointer is on the child, and then move the mouse in the direction you wish to travel, the child will follow.

The idea is to steer the child into one of seven locations to carry out an activity. The first activity you're likely to stumble on is in the mint where you can actually stamp a Viking coin. Help is available for every stage, but the idea is to drag one of the silver coins into the lower part of the die, place the upper part of the die on top, and grab the hammer and take a couple of swings at it. You can then separate the die and remove your newly minted Viking coin.

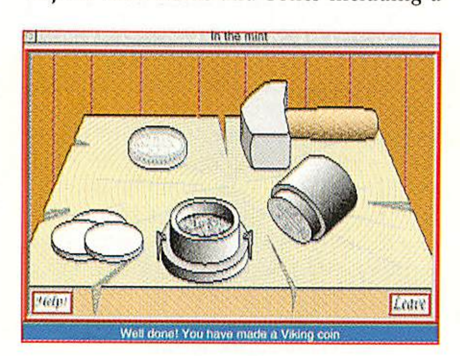
Other activities

All seven activities requires the user to drag bits around to complete the task. Touching the Help icon gives you the next step. Arrival at the quayside requires the user to prepare a ship for sailing. The user must load the cargo, cover it over with the nearby planks and stow the oars.

If the user moves into the blacksmith's barn they will be required to shoe a horse. Clicking on the horses hind leg causes it to rise. The old horseshoe must first be removed with the tongs provided and a shoe of the correct size must be chosen and fitted.

Near the quayside is the smokehouse. The user must first set the bait and then haul in the net which should contain three fish. These are then hung up in the smokehouse to be smoked ready to store during the winter.

The bone-carver makes a variety of objects from horns and bones including a lady's comb which must be finished. The corn in the field needs harvesting. A horse and cart awaits nearby for the finished bundles of corn and straw. The user must locate the scythe and sharpen it with a whetstone before cutting the corn. The straw needs to be bailed and then loaded onto the cart with a pitchfork.



Once the harvest has been completed, it goes off to the threshing barn where the corn is removed from the chaff and then shovelled into a nearby sack.

You may save your location and restart it from the same place at a later date.

Activities

The software is supplied with a 48 page book containing further details about the software including 12 double sided activity sheets for the Viking period.

They were written for 7-11 year old Key Stage 2 pupils and so some of the language may be a little advanced for the very young while some may seem a little juvenile for the older ones. I imagine most teachers will find more than half to be useful.

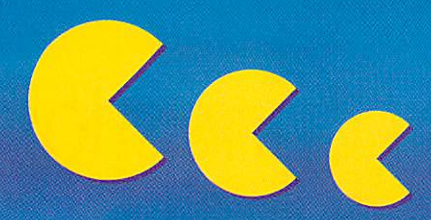
Along with the activity sheets is a National Curriculum breakdown outlining exactly which attainment targets are met by which sheets for history and technology.

At £34, I feel this software is a little pricey, but there has clearly been an enormous amount of research undertaken to complete this simulation. The activity sheets provide ready-made follow-up work and will also give teachers and pupils ideas for further study.

Product details

Product:	Vikings
Price:	£34
Supplier:	Logotron
Address:	124 Cambridge Science Park, Milton Road, Cambridge, CB4 4ZS
Tel:	01223 425558
Fax:	01223 425349
E-mail:	info@logo.com
WWW:	http://www.logo.com

Games advice

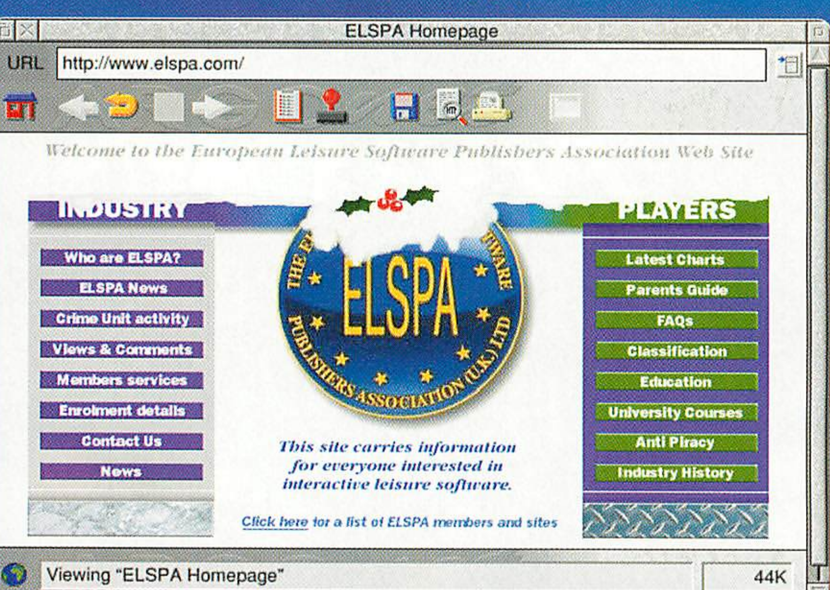




Steve Mumford flicks through ELSPA's latest information leaflet

By the time you read this Christmas will be over, but I think it's a fair bet to say that the continuing PC and console price wars will have allowed machines to slip into many more houses around the country. December saw the publication of a new advisory pamphlet, entitled *A Parents' Guide to Computer and Video Games*, aiming to address some of the issues which might crop up when considering the purchase of new games or hardware.

THE Games, distributors of the Nintendo 64 games console, and ELSPA, the European Leisure Software Publishers' Association, worked in association to produce the leaflet which covers a variety of topics chosen to reassure parents in the months around Christmas.



Health and Safety

One of the understandable fears that parents might have about their games-playing children relates to their safety when in front of the screen. ELSPA are quick to dismiss the old myth that video games could cause epilepsy, although they present some simple guidelines to minimise the risks to those who are already sensitive.

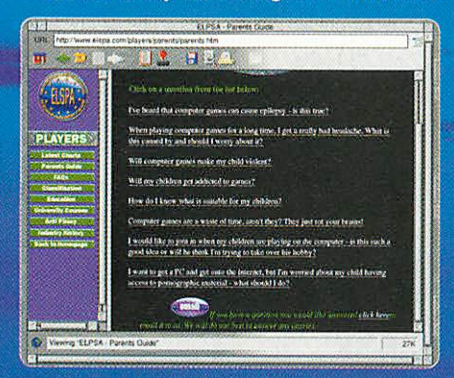
The next question to be tackled is whether a child could become addicted to playing a game. I'm sure we've all had our moments; time tended to race by when I first came across those loveable green-haired rodents, the Lemmings. However, the leaflet is quick to point out that although play might initially continue for hours, the situation will soon stabilise, and so it was for me – well, until the sequel was released.

The ELSPA Voluntary Age Rating System

Although there are a small number of games with enforced age classifications (the infamous *Mortal Kombat* being an example), the majority may be bought by anyone with a fist full of cash, and it's up to the parents to decide whether a game is suitable for their offspring.

ELSPA recognise that this can be a tricky procedure, and to assist the parents in their quest, the members of ELSPA make sure their products are marked with standard labels, showing the game's suitability for four age ranges. Generally speaking, platform games, racing games and sports simulations will be marked suitable for all ages, beat 'em-ups are flagged for ten-year olds and above, and intense shoot 'em-ups, graphic fighting titles or 'thriller' games are left for the over fifteens and eighteens.

It's true to say that most games on the market are suitable for those children of ten years or over, but the distinctions do allow someone to judge the character of a game without having to go through a detailed playtesting session. The voluntary ratings system is administered by the Video Standards Council and it's possible to write to them if you have any concerns.





Conclusion

The general upshot of the leaflet is that playing computer games can be beneficial for both children and parents alike, both in terms of 'sharpening the mind' and introducing new forms of technology in a user-friendly manner.

Although, perhaps unsurprisingly, there's a strong 'Nintendo' theme to the pamphlet with gaudy pictures of Mario and friends plastered everywhere, other platforms including the PC, Sony PlayStation and Sega Saturn get a brief mention.

One topic that could perhaps have received more coverage is that of the prices of the games themselves; although the leaflet gives various figures and states that budget games are available, I'm certain many people out there are wondering just why titles can be so expensive.

If you'd like to know more, the leaflet itself is available free of charge from high street retailers or direct from ELSPA at Haddonsacre, Station Road, Offenham, Worcs, WR11 5LW. The material contained within the guide also appears in a modified form on the Web, at the URL *http://www.elspa.com* The website offers an enhanced games glossary, perfect for those who need to distinguish their *Tomb Raiders* from their *Tekken IIs*, and it also provides the opportunity for parents to e-mail in any questions they might have.

I think the production of this leaflet shows that the games industry is being taken seriously and it's beginning to change from its rather simplistic beginnings into a media form designed to entertain a wider range of ages. Acknowledging that a growing portion of the market is made up of people in their twenties or above will hopefully mean that the software houses will think carefully about this divide and make sure their software doesn't neglect either generation.

Contacting me

You can contact me, Steve Mumford, at the usual *Acorn User* address or e-mail: augames@idg.co.uk

SHOW

The dragon's photo album

Graham Nelson is lost again

First impressions are that Skullsoft's *Arya: The Dragon's Quest* is an old-style text adventure game but with some pictures, a mouse-driven menu bar, and with occasional graphical logic puzzles. However, in spite of these disguises it's still a text adventure (clicking on the points of the compass icon is shorthand for typing 'north', 'south' and so on, while a double row of other icons stand for other popular commands – 'inventory', 'look' and so on).

The Temple Steps
The broad steps in front of the temple door are made from slabs of polished local granite, but over the years their rigid shape has been worn smooth by man feet. The door itself is made from black gobal wood, and carved with obscure religious icons and pictures.

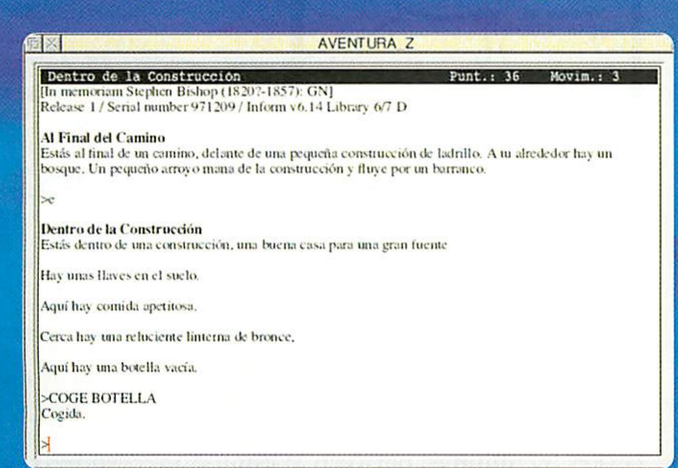
You can see: nothing unusual.
Exits Are: north, and west.
What next?
>

Take | Inv | Exits | Talk | Push | Search | Give | Use
Drop | Exam | Look | Ask | Pull | Quit | Open | Attack

The game is shareware and a demonstration copy can be downloaded free of charge from Skullsoft's Web page, but the registered version is bigger, has more graphics and is a bargain at only £6.50 (supplied on three discs). There are three versions: One for 'old' Acorns, one for Risc PC/A7000 and a third with better-resolution graphics for Risc PCs with VRAM. I've been playing the 'middle' version, which installed easily and looks fine.

Arya is to a PC graphics-adventure epic like *The Seventh Guest* what a village hall production of Agatha Christie is to the Royal Shakespeare Company (i.e. probably more fun and at the price of a round of drinks rather than a small piece of furniture). The text needs a little copy-editing here and there, and I'd hazard a guess that the icons might not be the work of a professional artist. Many of the locations in the game have illustrations accompanying the text. The first several are digitised photos of houses taken on an overcast day, as if our trip around the mythical island of Arya were being conducted by an estate agent. After a while, though, I found myself rather seduced by the countryside shots, the churches and ruins. They lend the game a kind of integrity.

Realism is less evident in the plot. We play Andor, who has become Lord of the Village Feast by winning a cross-country event. Can he win the hand of Melyssa, barmaid at the *Verdant Acorn* and local beauty (alas, no picture), handicapped as he is by a parser which doesn't recognise the verb 'kiss'? Can he prevent his teenage peer-group rival, the vile Adric, from having him burnt at the stake for sorcery? Can he rescue the lost keepsake of a rather chatty dragon from the troll-infested underworld? The stakes, as you see, are high. Andor sets out from his bedroom – an adventure-game cliché that never ceases to annoy me – and into a lavishly-simulated medieval village – another one – where you can buy seven different kinds of confectioner's pastry alone.


AVENTURA Z

Dentro de la Construcción Punt.: 36 Movim.: 3
[In memoriam Stephen Bishop (1820?-1857): GN]
Release 1 / Serial number 971209 / Inform v6.14 Library 6/7 D

Al Final del Camino
Estás al final de un camino, delante de una pequeña construcción de ladrillo. A tu alrededor hay un bosque. Un pequeño arroyo mana de la construcción y fluye por un barranco.

>e

Dentro de la Construcción
Estás dentro de una construcción, una buena casa para una gran fuente

Hay unas llaves en el suelo.

Aquí hay comida apetitosa.

Cerca hay una reluciente linterna de bronce.

Aquí hay una botella vacía.

>COGE BOTELLA
Cogida.

>

At this point, though, I began to realise that *Arya* is a much more sophisticated game than it first appears. The population of the village move about, as do their slightly mysterious pet animals. There's a surprising variety of portable objects, some of which are used in surprising ways. The pool of tallow under the candelabra, for instance, has to be melted, using something hot, to make runny tallow, which... but that would be telling. The village is only one of a dozen or so regions on what turns out to be an expansive island.

All said, it's an entertaining game, and not one that will be solved quickly. (Reviewer's jargon for 'I haven't solved it yet'.) Standard text-adventure fare is broken up with riddles and graphical desktop-toy-style puzzles; slide the blocks in the right configuration to open the door.

The parser could do with a little more work in places – it took me a horribly long time to fill the bucket with water: 'Fill bucket', 'take water', 'use bucket', 'use fountain', 'use bucket with fountain' ('use X with Y' is a frequent command in *Arya*-speak) were all refused. The right formulation turned out to be 'lower bucket in fountain'. But these frustrations were rare. *Arya* is better than it looks, and I'm enjoying it.

Product details

Product:	Arya: The Dragon's Quest
Price:	£6.50 (applies to all three versions)
Supplier:	Skullsoft
Address:	27 Tollemache Rd, Claughton, Birkenhead, Wirral L43 8SU
E-mail:	skullsoft@eganc.demon.co.uk
WWW:	http://www.eganc.demon.co.uk/skullsoft/arya.html
Pros:	Large and fun • Beguiling photographs • A bargain
Cons:	Parser a little weak • Has a home-brew feel to it

¡Bienvenido a Aventura!

To finish, a brief news story: Jose Luis Diaz has translated the original *Adventure*, a.k.a. *Colossal Cave*, into Spanish. The result is an Inform game playable under the *Zip2000* (or any other Infocom-standard) interpreter, and might make an entertaining aid for language teachers. Lesson One: In The House At The End Of The Road. *Aquí hay una botella vacía. COGE BOTELLA. Cogida...* Aventura can be downloaded from ftp.gmd.de/if-archive, as can much else.



Dave Acton and **Dave Lawrence** reveal the winners of the Wintry Challenge

star info

Cache dispenser

Author: Andy Vawer

Despite a number of utilities being available, it is still not possible to run all old code on StrongARM processors. The main culprits early on were decompressors, but just about all these problems have now been addressed, which leaves a very small proportion of unrunnable applications.

The usual suspect being self-modifying code causing havoc with the separate instruction and data caches on the StrongARM. It has been possible to run such programs by disabling the processor cache with **Cache Off* however, due to the nature of the Strong ARM, this means that it reverts to a speed resembling an ARM2 – making most desktop operations unusable.

TaskCache from **Andy Vawer** is a cunning little module which attempts to improve the situation. Rather than disabling the processor cache permanently, it disables it for those tasks that will not run with the cache enabled, and re-enables it for all other Desktop tasks.

This improves the performance of the Desktop greatly over leaving the cache turned off. However, if a task is polled for every null event, there will still be a very noticeable slow down for the other tasks.

How to use the module

1) Ensure that the module is present. This can be achieved in two ways:

a) Placing it in your Boot sequence (e.g. !Boot.Choices.Boot.PreDesk directory)

b) Placing the line

```
RMEnsure TaskCache 1.00 RMLoad <Obey$Dir>.TaskCache'
```

in the !Run file of the application which must be run with cache disabled, and copying the module into the application directory.

2) Add a *Task_CacheOff* command to the !Run file of the required application. This is best placed at the beginning of the file, but you may wish to experiment to improve loading times.

In a couple of situations the module doesn't quite work:

• It's possible for a Desktop task to have a module associated with it which does some form of work outside the Desktop task. For example, it may claim an event or run under an interrupt from a hardware device. If the module won't run with the cache enabled, it will probably crash. If the task has modules that are only called by it and other applications which are running with the cache disabled then there will be no problem.

• Non-desktop tasks. Although the program will now work (because the Task_CacheOff command also turns off the processor cache), the *next* Desktop application that you start up after that one will be adversely affected! Quitting and restarting the affected task will solve this.

Jungle fever

Author: Clem Edmond

Resident happy-hardcore music-maker **Clem Edmond** takes a diversion from his usually upbeat mood with his latest Digital Symphony creation *Swamp*. What brought about this venture into the netherworld of jungle music can only be the subject of pure speculation.

One of those teenage phases that invariably leads to black wallpaper in the bedroom perhaps? Or maybe he's just coming back up after a bad Jan Vibe trip. Who knows? *Swamp* is certainly one of Clem's most accomplished works to date though and the track plays particularly well with *Flux* by the way.

Walking in a winter wonderbra

I mean land. Well it's that time of year again. February in fact. There are, to my knowledge, only three consistent features of the month of February. Firstly, it is the time of year when you are most likely to be reading the February *Acorn User*. (Apart from those who have got it in January, or are reading a back-copy). Secondly, it is the month when a certain ageing *info editor ages another yearly notch (while the other one is quietly turning %11110 as this is being written). Finally, it is always pretty cold.

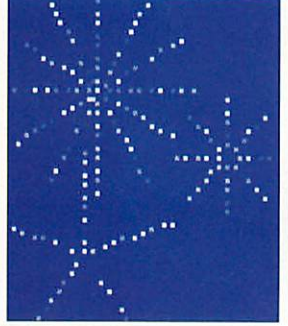
Of course, with global warming and all, chances are we will all be basking in a tropical paradise by the time you cast your peepers over these barely relevant ramblings. But, in keeping with traditional weather patterns, here are the winners of our latest challenge – a challenge to capture the magic of winter on screen. We intriguingly named this quest the *Winter Challenge*.

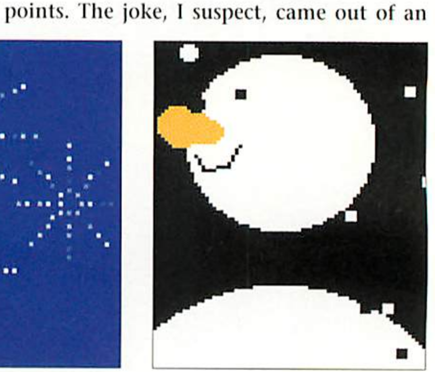
Runner-up is **Hayley Briscoe** from the Isle of Wight with *!Winter*:

Runner-up by Hayley Briscoe

"This program simulates a cold evening in winter. You sit in the small, dark living room in your comfy green armchair listening to the clock ticking and watching the flickering fire. It casts eerie, black shadows around the room and lights up the corners. You huddle further into your chair for warmth. Snowflakes continue to fall, and cling to the glass on the window. Your cat Sooty seems to have the right idea and lies on the rug close to the roaring fire. Time passes slowly. The clock chimes the hour – only six o'clock..." Hayley receives a couple of a bonus points for a nice wintry header to the *!Help* file.







The winning entries by Dean Alexandrou

The winner, however, is none other than **Dean Alexandrou** of Colindale, North London. Colindale is, of course, appropriately an anagram of "Lo! Iceland", so Dean was fated to win a prize really. He wrote three wintry numbers in total.

IceCrystal is only 370 bytes long. It plots, well, icy crystalline things. *SnowMan*, which I suppose we should have called *SnowPerson* in these modern times, plots the progress of a thermally challenged individual, who has rather bizarrely, acquired the gift of defying gravity. If this weren't enough, the gentle-ice-person's head operates independently of his body, although from the smile on the aforementioned head indicates that no snowpeople were harmed during the making of this program. The snowman is in fact constructed from 18 3D points. The joke, I suspect, came out of an economy pack cracker.

Finally, *WinterPic*, creates a winter scene from ice crystals. You have some control over the resolution etc, so you should be able to run the demo on almost any machine. Opting for the highest quality (and therefore the slowest generation) produces an image worthy of the wait. Well done Dean.

The challenge continues...

...but not for a little while. Our challenge spot is taking a break for a month or two, while we plan some new themes to test your programming powers to the limit. If you have any suggestions for future challenges, or have written a program and would like to challenge the *info readers to do better, let us know all about it at the usual address.

As is the way with *info, all our previous challenges are effectively still open – we seem to have seen more circle submissions since the challenge closed than when it was open! So if you think you've written something suitably circular, cloudy, tunnely, creepy or wintry, we'd still be very interested in seeing it. Of course there are extra bonus marks available for any circular, creepy, cloudy, ice-bound tunnels.

Disc breaks

Author: Scott Boham

Or rather, what to do *if* your disc breaks. **Scott Boham's** *DiscCopy* utility backs up a disc one sector at a time, rather than track by track (as is the case if you use Backup on the ADFS menu).

If you have a disc containing several errors and some vitally important data, use Scott's program to copy what can be copied to a fresh disc. Then you can try and retrieve what you can from the new copy, without further damaging the original.

DiscCopy simply uses the SWI call ADFS_DescribeDisc to find out about the shape of the disc in question. On entry, R0 points to the disc name (e.g. ":0") and R1 to a block of memory. On exit, this block contains the *disc record* which, among other things, includes the following:

Offset	Contents
0	log 2 of sector size in bytes
1	number of sectors per track
2	number of disc heads
3	density (1 single, 2 double, 4 quad etc)
16	size of disc in bytes
22	disc name

Having deduced the required information from the disc record, the program uses an XADFS_DiscOp call to read each sector separately. If an error occurs, it is simply ignored. Obviously, if a dodgy sector coincides with something important – like the root or other directory – it will be virtually impossible to retrieve your data without using a more sophisticated disc repair utility. However, as a first shot at saving your data, this utility will at least copy all that is copyable, so that you can try and pick up the pieces later on.



Planet plan

Author: Jonathan Stott

Jonathan Stott writes:

'After the September 1997 submission from **Scott Boham**, I have radically modified the solar system simulation. It now takes care of all the moons/satellites of all the planets, a new 'hypothetical' planet (Planet X) has been added in the expected position, rings have been added to the relevant planets (Jupiter, Saturn, Uranus and Neptune) and the problem of elliptical orbits has been solved.

'Planets with more than one satellite now have an individual view, showing the satellites from close up. This is very effective with Jupiter, as the satellites of Jupiter are at wild inclinations. All planets and satellites have inclinations relative to the plane of the Earth.

'Perspective has not been included, it was deemed unnecessary, although it would be quite easy to make the planets get lighter when they are in the foreground and darker in the background. I would have liked to have included an indication of the phase of each of the planets – this would have caused my A3010 to slug up (it is already at a snail's pace in some of the views!);

There are a number of ways of controlling the simulation:

A	Change to the MARS view
J	Change to the JUPITER view
S	Change to the SATURN view
N	Change to the NEPTUNE view
U	Change to the URANUS view
'@	Increase the 'circularity' of the elliptical planes
/?	Decrease the 'circularity' of the elliptical planes
Left Arrow	Decrease the Time Scale
Right Arrow	Increase the Time Scale
Up Arrow	Zoom in
Down Arrow	Zoom Out
Q	Return to the main Solar System View from a planet view
Space Bar	Show/Hide Planet Names
O	Show/Hide Orbits

Some planets have preset zoom levels, try pressing the number keys to zoom

The pointer sinisters

Author: Andrew Hunter

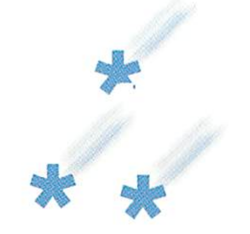
Back in June last year we published a rather fun wibbly pointer written by **Andrew Bolt**. This has now been given the full desktop treatment by **Andrew Hunter** so you can have wibble while you work. Andrew (H) says:

'This simulates a pointer mutated by, say, a large pile of nuclear waste left for too long on top of your monitor (an all too common occurrence in the Hunter household – we accept no responsibility for anyone who tries to mutate their pointer using this method, Andrew's prog is *info endorsed method of pointer wibbling).

Andrew H hands full acknowledgement to Andrew B for his original work on the actual wibbling effect. Andrew H has written a simple multi-tasking app that takes the distorted pointer and instead of plotting it on the screen, writes it to a sprite stored in the RMA. This is then attached to the pointer with OS_SpriteOp 36.



There is no neat way of stopping the effect, so you must quit the task from the task manager display. As the effect is generated from a WIMP task, it will obviously not work outside the desktop. Anyone fancy recoding Andrew H's work as a module?

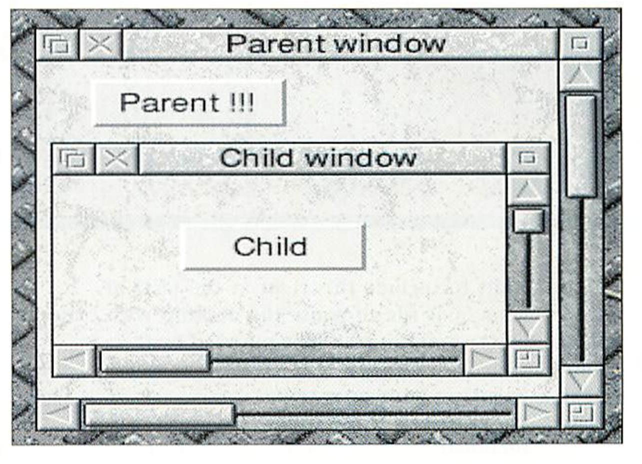



Nesting box

Author: Justin Fletcher

Acorn have been quite busy recently adding functionality to RISC OS, mainly to cope with their new Web browser. One of the main new features of these enhancements is the so-called 'nested wimp'.

This allows windows to be nominated as 'parent' and 'child' objects and moving or resizing the parent automatically moves or resizes the nested child window – rather like the way Windoze applications make a window and then all the documents are sub-windows within this. To a certain extent we've had this ability with panes, but these have never been particularly easy to drive so the new WIMP is very useful.



We hope to have space to cover the various calls needed to implement a nested window in a future issue, but in the meantime, here's a very simple demonstration from **Justin Fletcher**. Obviously you will have needed to install the new WIMP (version 3.96 or later). After this it's simply a matter of double-clicking the *!NWTest* icon and experimenting by moving the parent and child windows around.

Independence day?

Author: Martin Allcorn

Pah! Who needs 20 mile wide, city destroying, alien ships, Roswell secrets and Jeff Goldblum? We've got 1K space invaders! **Martin Allcorn's** master of miniaturisation is *exactly* 1024 bytes long and written entirely in Assembler. The source code is provided for those interested. It features 32 hideous xenomorphs, ion cannons, fractal destruction bombs and blood-pressure raising, brain-thumping sound-effects. OK, OK, well maybe we exaggerated just a tad about the sound-effects, but all the rest is true. Honest. Martin says:



'There are no specific OS requirements though it really needs a minimum of a Risc PC because of the large number of OS display calls used. It uses mode 1 so will appear in a letterbox on most systems. The game was written and tested on a 200MHz StrongARM powered Risc PC, but has been tested on a range of other machines: A3010 – too slow, flickers really rather too much, A5000 – playable though flickers a fair bit on the top 4/5 rows of the screen, Arm710 RPC – only flickers occasionally at the top of the screen. RiscPC, SA110 – 100Hz refresh without flicker.'

Martin claims a high score of 990, the *info personal best is a measly 550.

We have another treat for micro-game fans next month, but in the meantime, anyone fancy knocking up a 1K Defender? Scramble? Pac-Man? Pin ball? BASIC or Assembler submissions equally accepted. The trend for 1 line BASIC games has all but died out recently, but we are still interested in any minuscule examples.

Just when you thought it was safe to go back into the desktop...

Author: Philip Mellor

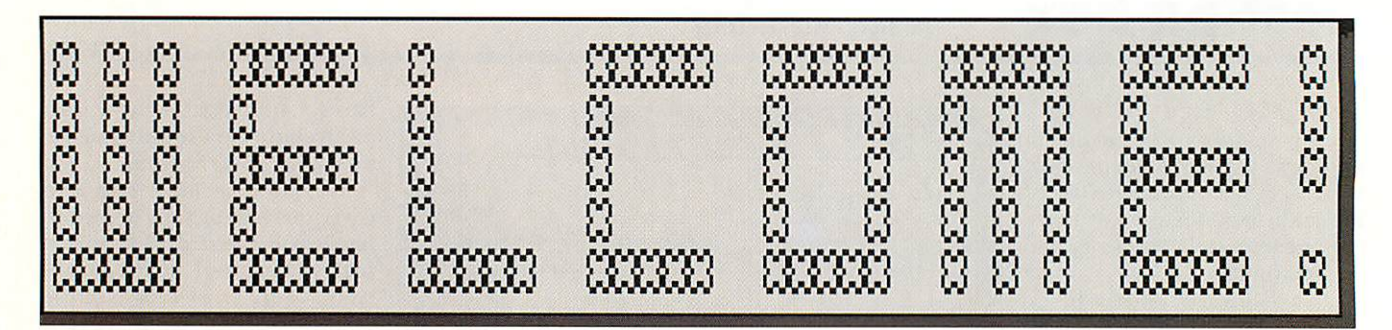
A "silly" from **Philip Mellor** now. Well, we've had cats leaping about the desktop, chasing the pointer. We've even had cockroaches that hid under windows and then scuttled away in all directions when uncovered. This time it's something altogether more dangerous. Your desktop is about to be invaded by the ultimate killing machines.



Fortunately the three oversized haddock in question seem to be well fed and thus relatively docile. Don't be fooled by the parallax though. The one with the small grey fin is actually the biggest – it's just further away...

Get the message

Author: Jonathan Rawle



If you've ever yearned to have something more interesting appear on your boot-up screen than "your copy of Pineapple's virus killer is way, way out-of-date – buy yourself a new one" or the like, this next offering from regular **Jonathan Rawle** is the utility for you. *!Messages* allows random messages to appear each time you switch on – ideal for those of us without StrongARMs, while we wait for the desktop to wake up.

To install, copy the *!Messages* application onto your hard disc/boot disc. On pre-Risc PC machines add the following line to your *!Boot* file:

```
run ADFS::Hard.$.Apps.!Messages
```

changing the pathname to wherever you have placed the application. On Risc PCs you will need to add the line to *!Boot.Choices.Boot.Desktop*.

"If you now re-boot your machine (Ctrl-Break), some text should appear under the RISC OS 3 banner while you are waiting. If this was a quiz question, the answer will be displayed in a window when the desktop appears. *Messages* is supplied with a small program named *CheckCtrl*. You may want to include this right at the END of your boot file to pause the desktop with Ctrl so you can read long pieces of text.

Creating your own text

"A few example pieces of text are included, but you can quite easily create your own. You can edit the file *!Messages.text* as you wish. Once the edited file is saved, you MUST double-click on *!Update* in the messages directory, otherwise the application will not function correctly.

"Each time *Messages* is run, an item of text is chosen at random from this file. The text is not automatically formatted, so you must press Return at the end of each line.

"Each text item should contain no more than 30 lines. At the end of each piece of text, you must include the \ character on a line of its own.

You can centre a line by including <> at the start, or right-justify with >> instead. You can underline using the following technique. Enter the text as usual, then add a _ and a character 8 (that's ASCII 8 not number 8) in front of each character that you want underlined.

"To include a question with an answer, use the following format:

```
What are the capitals of the follow-
ing?
   1. France
   2. Germany
   3. Spain
?
Quiz
Answers:
   1. Paris
   2. Berlin
   3. Madrid
\
```

"The first four lines are the question, and will be displayed under the welcome banner. The next line is just a '?'. This tells *Messages* that the text is a question and an answer is required. This will not be displayed with the text. The line after this is used in the title of the answer window in the desktop. You do not have to include a title, but you must leave a blank line instead. The next four lines are the text for the answer. The question and the answer will be displayed in the desktop. The '\' indicates the end of the text."

*QUIT

Send all submissions, (no larger than 100K please, and in general, the smaller the better) to us at:
*INFO, *Acorn User*, IDG Media, Media House, Adlington Park, Macclesfield SK10 4NP
or, if your submissions total 100K or less, e-mail us (including your real address please) at: *austarinfo@idg.co.uk*

You needn't include a letter but please put your name, address and program title on every disc and include a text file containing your name, address, disc contents and program details. Any additional information is always welcome – how your program works, diagrams, examples and so on. An SAE will ensure your discs are returned. As always, send only *info submissions to us please.

As mentioned in the January issue, the long saga of our e-mail address has finally ended and we are confident that we are now correctly receiving our e-mail. We know that many submissions have failed to arrive over the last few months, but we have endeavoured to reply to all those we have received. If you sent us something *before* December 1997 and have not heard anything from us, please send it in again. The wonders of modern technology eh?

Compatibility table

Program	ROS 2	ROS 3.1	ROS 3.5+
Invaders 1K	Yes	Yes	Yes
Inv Source	Yes	Yes	Yes
Disc Copy	Yes	Yes	Yes
NW Test	(No)	Yes**	Yes
WibblePtr	Yes	Yes	Yes
Sharks	Yes	Yes	Yes
!Messages	No	Yes	Yes
Planets	No	Yes	Yes
CacheMad	No	No	Yes*
Ice Crystal	Yes	Yes	Yes
Snowman	Yes	Yes	Yes
Winter pic	Yes	Yes	Yes
!Winter	No	Yes	Yes

* StrongARM required
** Needs new Nested Wimp Manager



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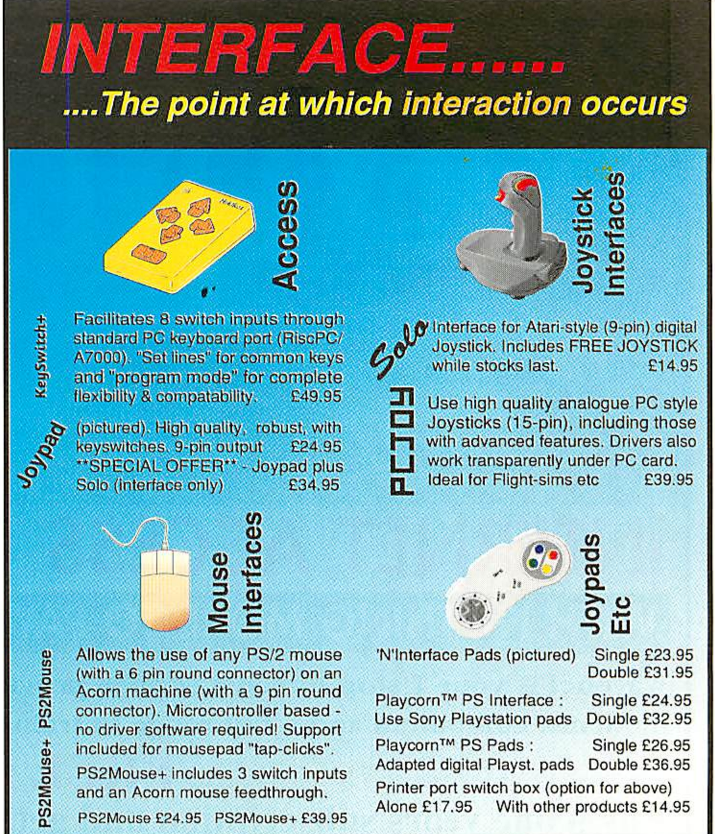
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Email: info@werewlf.demon.co.uk • WWW: http://www.werewlf.demon.co.uk/

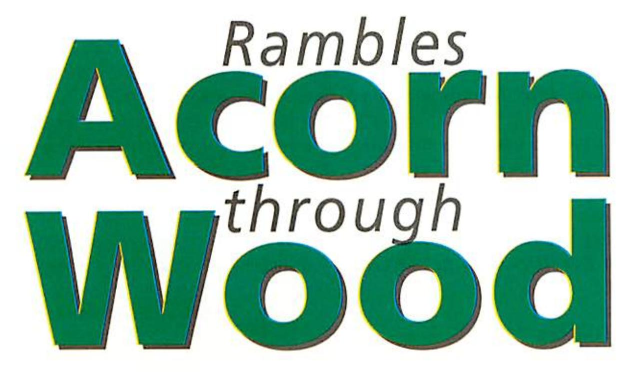








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Another question and answer session with **Mike Cook**

In the rambling bit each month I tell you a bit about what's on my mind or what I've been up to. This month my thoughts have been very much on music. Not only has there been my Run the Risc project, but Wendy, my wife, and I have been putting together a music fanzine. Having actively pursued modern music for the last two years, got to know many musicians (some with top 10 hits) and fans, we have decided to distil this onto paper.

The writing is from Wendy, some of the many friends we have met and me. I am not actually doing the layout for it, but I did use my Risc PC to scan in and process some of the photographs to accompany the articles. If you'd like to know how it happened to an old wrinkly like me or want to read about our favourite and not so favourite indie bands, then look inside the help file in this month's project to see how you can get hold of a copy.

It helps me answer questions like this from Andre at The University of Birmingham, he is having trouble with movies:

On a CD-single recently there was a free 'interactive' movie, which appears to be in a slightly odd replay format. *ARMovie* claims one of two faults:

- **It is unable to fine !runimage for Type 130**
- **The movie header contains no information about the movie (but only soundtrack info).**

I have seen the header (only in Windows 'cos it's too big for *Zap* to load it appears), and know that it does contain movie information. Is it possible to coax *ARMovie* to play the file, or is this a lost cause? I can't actually watch the movie on the PC side because it needs a P90, a fast graphics card and *Direct Draw*.

It might indeed be a lost cause. Warm Silence Software produce *MovieFS* which will allow you to play many *Quicktime* and *AVI* movies. Those I have found on the CD singles of Feeder, Subcircus and Smaller will play but unfortunately the colours are wrong.

These are all PC/Mac discs so the Acorn machine is only seeing the PC disc and not allowing my Computer Concepts MacFS to kick in. If it did, I might have more luck with the *Quicktime* version. Incidentally, the new Mac operating system, OS8, shows these dual discs as two separate volumes on the desktop instead as just the Mac disc that earlier operating systems used.

All movies use some type of compression and these are given a type number. You can see what type numbers you have available on your system by looking into the *ArmMovie* application inside the Boot.Resources folder. Each decoder is in its own folder with a name like Decomp602. I've noticed that I have not got a Decomp130 folder so it looks like you can't view that type anyway.

Nicholas van der Walle of Astute Graphics shows he knows his stuff with an answer to a past puzzle:

In the Christmas '97 edition of *Acorn User*, a question was asked regarding the integrity of a JPEG image downloaded from the Web by S. Antczak of Oxted, Surrey. The JPEG images which result in a very large number of pixels along the horizontal and zero vertically are interlaced JPEG images. Currently the only Acorn software that I have found that can successfully display these images is *Fresco* of the *ANT Internet Suite*. Not even the latest version of *ChangeFSI* is able to cope with them, to the best of my knowledge. This appears to put old Bill in the clear. For now.

Des Fry from CRC Computer Services, Cheltenham, adds to the information about this:

There is an unofficial but popular version of *ChangeFSI*, specifically *ChangeFSI V1.15RC* which handles most of these problem JPEGs (in my experience anyway). I downloaded mine from: http://home.earthlink.net/~frodemwells/RiscOS Software.html which is an interesting source for graphics software.

Alasdair Yates has a solution to another problem:

I just read in the December *Acorn User* about a problem with a MIRAI CD-ROM drive saying "Broken CD". I had the same problem with a Seagate drive, and found that some CD samplers and players (from Hensa) worked while others didn't. I downloaded *!SampleCD* and in the directory there is a text file explaining how to fix the bug. It says:

After a little work I have a Bug Fix for *CDFSsoftATAPI* v.1.23 (31 Mar 1995) (RISC OS 3.6 version). I am not sure if the bug is the fault of my six speed Aztech CD-ROM or the module, but one of them is not truly ATAPI!!

This small change fixes two bugs

- **Compact disc Faulty error with any data CD-ROM on the Aztech drive**
- **Not an audio track error. This mainly occurs with *!SampleCD***

The bug is in the CD_SetParameters code. This fix prevents the errors being generated. The actual error is generated much lower down in the code &1598. This piece of code is used by many other CD_ SWI's so it cannot be changed here. This fix is not the best solution to the problem but it seems to work.

Using *!Zap* get the module and goto &484 change the BVS &8D0 to MOV R0,R0. Save the Module to !boot.choices.boot.PreDesk Reboot machine.

However, his e-mail was followed up by another saying:

I just sent you the CD fix solution to the problem in December *Acorn User* and realised that it was me who wrote to you in the first place!! Still, I hope it helps other people too. I also note that I originally had a MIRAI x20 drive. I now have a Seagate x24 drive, and the patch works with them both.

James White has some more advice for Alasdair:

First of all, the best advice is that the MIRAI should be extracted from the RPC and forward-passed through the (open) window at maximum velocity, so that it is placed well out of reach. Then install an Acorn-approved Sony unit. In the end this will prove to be the best course to follow, because the MIRAI specifications fall way short of the standard. Cheap, in other words.

However, the following steps can be taken that do allow it to operate, after a fashion:

- **In the Task window, at the * prompt, do a Unplug CDFSSoftAtapi. Check by typing Unplug.**
- **Copy two applications into !Boot.Choices. Boot.PreDesk. These are !CDFS2_21 and !EX_ATAPI, and are obtainable from http://www.cesox.demon.co.uk/cddrives.htm**
- **Check that Acorn's RomPatch is also in the PreDesk Directory**
- **Practice is required to judge when best to click on the CD icon bar icon, or when opening directories, by listening to the whine of the revolutions. Expect frequent error messages and machine resetting while learning.**

Richard Grant, a sometime Toothsmith, has some more advice:

I also faced a problem similar to Alasdair Yates (December 1997 *Acorn User*), in trying to export *Draw* files from my Acorn Risc PC to my Laptop PC. I am writing the definitive manual for a dedicated vertical market PC application and I prefer, naturally, to do as much work as possible on the Acorn as distinct from one of my work PCs.

The vector drawings are done at home on the Risc PC in the evening while the text is keyed in on the laptop at work during the day. The whole thing is then assembled together in *Publisher Plus* on the Risc PC for outputting into *Postscript* file format for commercial printing. Or at least this is how it was planned.

In the event, a slight change of plan because of the problem of exporting *Postscript* files from a Risc PC (but that's another story) has meant that the text is now going to be re-outputted from the Acorn as simple ASCII for reassembly in a DTP application on the laptop. The drawings, of course, remain a problem.

In the event, I have tried just about everything on the market for exporting the *Draw* images. I started with *!Draw->WMF* by Keith Sloan but that created files which wouldn't load into *Word 6* or *7*. So I then took the files exported by *!Draw->WMF* and loaded them into *Paintshop Pro* on a PC (which took them successfully) and exported them immediately again as *WMF* files and these then successfully load into *Word*. However, sadly, the resultant image was worse than useless and was unusable – Acorn text just disappears completely on translation (perhaps not surprisingly) as I hadn't converted ➤

Rambles Acorn through Wood

➤ them to path objects.

While there are many tools which allow importation of foreign graphics formats into Acorn applications, there are precious few which work the other way round. In the end, I abandoned all attempts to move the images as files and returned to first principles. I now print the images, via *Draw*, onto my HP LaserJet printer at full A4 size and have them scanned directly into the PC using native PC applications. This results in a reassessable image of superior quality which can be manipulated within the PC environment without any problems. Crude but effective.

I hope that this slightly negative comment is helpful. Now if anyone can write a good translator from Draw to *WMF* or similar...

Another problem gets hit on the head thanks to Richard Walker in Stockton-on-Tees, he writes:

The sound in Microprose's *Grand Prix II* works if you purchase *PCSoundPro* available from R-Comp Interactive (http://www.rcomp.co.uk). This replaces the *PCSound* module inside *!PC/!PCx86*, providing enhanced sound support and a few more bobbins. I gather Aleph One's *PCPro* is also being developed to work with a still-in-development version of *PCSoundPro* (2?) to provide even better compatibility.

Mike Hambley from the University of Salford has an idea for saving money:

I have an internal 2.5in 20Mb Watford IDE Hard drive for my A3000. With it being 20Mb I am hideously short of disc space, I was wondering if I can remove the black plastic lump that is the drive from the interface and buy a bare drive and simply plug it in. There is a short length of ribbon cable between the drive and the interface, the interface side is covered in what looks like silicon bath sealant but the drive end is free. If this is possible what would I have to specify to a dealer I wanted?

Sounds a good idea doesn't it, sadly it won't work. First of all there is no standard drive electronics interface, so getting the controller and the drive to talk to each other would be tricky. Most crucial is the drive electronics that define how much disc space there is, not the drive. So if you could put a higher capacity drive onto the electronics it would only work at the lower capacity. For this reason you run into the third snag, no-one sells just the bare drive anyway.

Nice try, try again, which he did:

I was discussing with a friend (an Amiga user) about buying a bulk load of floppies, thus splitting the cost. I wanted to buy HD discs as I hope one day to upgrade to a RPC which has a HD drive but my friend said that all the Amiga mags say that you shouldn't use HD discs formatted down to DD format, something to do with HD discs being unstable. Is this true or can I use HD discs formatted down to 800K, is it an Amiga quirk or just untrue?

The advice your friend gave is correct but he is a bit short on reasons. The point about the higher capacity magnetic discs is that their magnetic characteristics have been tailored to the smaller higher flux density fields produced by the HD drives. This is unsuitable for the magnetic fields produced by the recording heads of the older type of drive. In short, the drive doesn't produce enough of a field and so what you record is a much weaker signal.

This is sufficient to work but not strong enough to work reliably over a long period. No doubt some people will say that they have used these discs for x years and had no trouble, but my experience is that they are simply not reliable after a few months.

Mike is getting his money's worth this month with yet another problem:

I don't know if you have come across this but when playing the excellent *Starfighter 3000* demo on my brothers' RPC 700 I found that it would only accept three keys being pressed at once. This made dog-fighting considerably harder as I couldn't bank (two keys) fire (one key) and use thrusters (one key) at the same time - it locks you on a set course until one key is released. Is this the keyboard or the software? If it is the hardware will Acorn be addressing this small problem in the new RPC and is there anything that can be done to older RPCs?

Yes this is a hardware problem but not one that Acorn can do anything about because it is in the PC keyboard and Acorn aren't going to go back to making their own. The way the keyboard is scanned means there is a limit on the number of keys simultaneously held down that can be detected. This number varies depending on what keys they are but is usually three.

However, if you look around the PC shops you will come across several devices that plug in between your keyboard and computer and allow you to program up key combinations onto a single button. Using these you can perform all the functions you like at the same time. In fact I had a consultancy job about two years ago to design such a system for a Far East joypad manufacturer. As they had an exclusive contract with me sadly I can't show you how to do this as a project.

Frank Jukes has a useful contact name for those left in the lurch by the demise of HCCS:

Andy Armstrong, who I believe had a significant involvement in HCCS products, has a presence on the Net at andy@wonderworks.co.uk and http://www.wonderworks.co.uk and he has offered help on HCCS products via the Acorn newsgroups on a number of occasions.

Bill Darlington from the Bell College Of Technology is another in search of a printer driver, but this time with a difference:

Any idea how to get RISC OS machines to print properly onto ink jet transparencies? I've used proper HP DeskJet acetates with HP520 and HP590C from an A3000. The results are a mess. I'm ashamed to say that I've had to port my *ArtWorks* files over to *CorelDraw* to get them printed.

Anyone out there solved this one?

Don Singleton has been having a bit of trouble with my Satellite software:

I was very interested in your articles on decoding satellite images. I still use the RIG receiver and frame store built some three years ago. I tried to use your *SatRead* and *PalMake* applications on the December disc to process a Sprite of a weather picture but have had some problems with it.

When I tried to apply false colour I failed to produce anything except a line of colour along the top of the picture. The rest of the picture was in black and white. Also, when I tried to use 'phase' the computer crashed. My system is Risc PC 700 with StrongARM and PC card. In your article you refer to 'contrast stretching' but I'm not sure what to do to achieve it.

The problem here is that you are not using the right sort of Sprite. You need to use a 256 grey scale Sprite or 256 colours with a palette. The effects you describe is what happens with a 16 or 24-bit Sprite. Now this is partly my fault because I should have put in a routine to check the type of Sprite before performing any operations on it.

However, in my defence I would like to say that initially the application was designed to process only Sprite files that it generated after the reception of an image. It was only at the last minute that I added the ability to load in a Sprite to the program and at that point I forgot to consider the fact that people would try and load in other formats of Sprite.

If you want to use any Sprite, first convert it using *ChangeFSI* into a 256 grey scale Sprite with palette then you will have no problems. On your second point contrast stretching means compressing the displayed grey scale to a smaller range of data values. For example, suppose your image had only useful information between the data values of 80 to 160, then you would set things up so that 80 showed black, 160 showed white and there was a grey scale between these values.

You can do this easily by moving the two pointers in the PalMake window to the appropriate points on the histogram, note they are to the same scale - lucky or what? Then just use the interpolate - grey short function to get a grey scale between these points.

Pam Earnshaw is having problems with large images, she writes:

I am trying to use some scanned images (line drawings of birds) in a multimedia program and a database for use in schools. They are too large for me to do this successfully (memory too large as well as appearance when first loaded.) I have tried loading them into a wordprocessor (*Pendown*) then reducing the screen image to a more reasonable size, then resaving with the *Paint* grab facility. This reduces them a bit, but I am hoping you can tell me of another method. They are only black and white.

Well, first off if you want to reduce the size of the images then *ChangeFSI* will offer you a greater control over the reduction process so you can get any size you like in a single step. Next, to reduce the memory space even further, look at the types of image file your multimedia package can handle.

If it can use Gif or Tiff then convert your Sprites to these formats as they can include loss less compression. Finally for the greatest compression why not convert your images into *Draw* files, there are several vectorisation packages about that can do this, and these normally work best on simple line-like images. AU

Contacting me

You can contact me, Mike Cook, by post at the usual *Acorn User* address or by e-mail at: auqanda@idg.co.uk

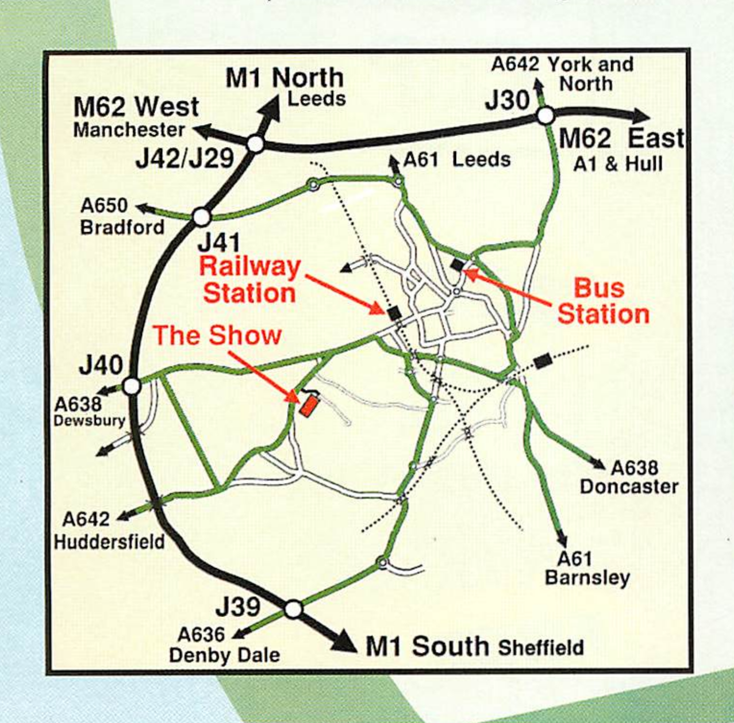


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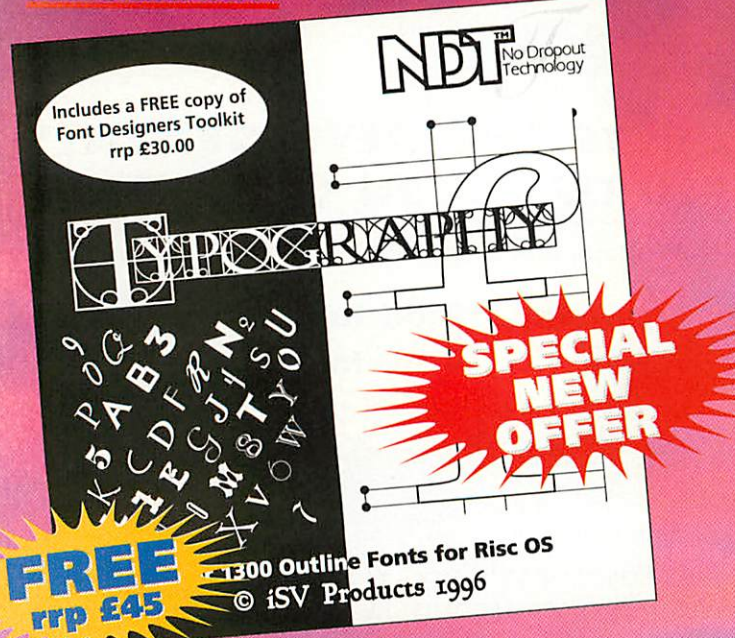
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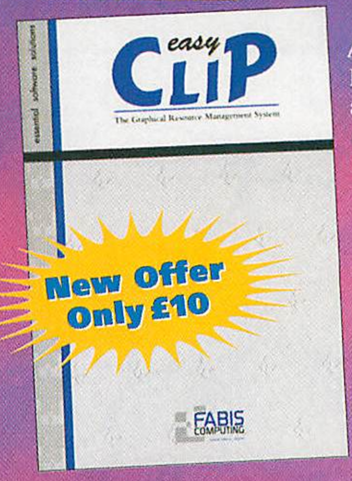
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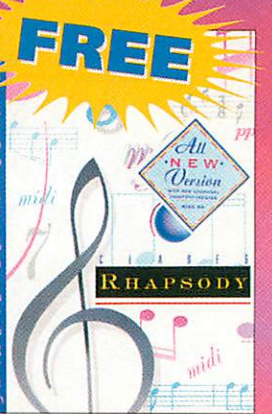
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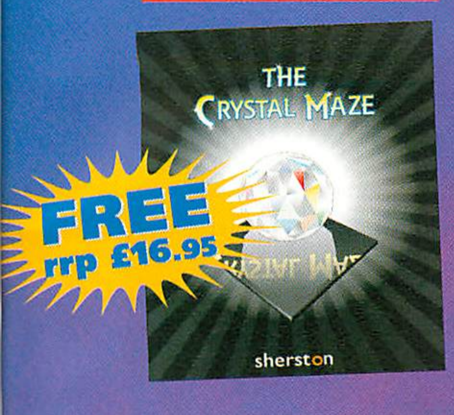
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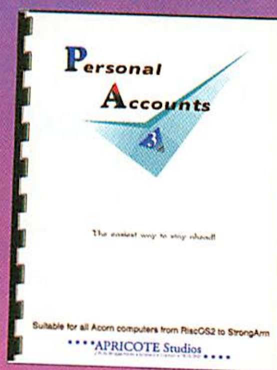


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Having a Super Wah Wah time

Mike and **Alec Cook** start out on their path to rock stardom

Take a writer like me with a teenage son who wants to be a rock star, and you'll find that quite some time is spent thinking about guitar effects pedals. I wanted to come up with something to process an electric guitar that was unique, something no-one had ever made before. So here it is – the Super Wah Wah pedal.

You might be thinking that the Wah Wah pedal is not unique, or maybe you're wondering what on earth is a Wah Wah pedal – let me explain. A Wah Wah pedal is basically a tuneable band pass filter that is swept through the audio spectrum with a foot pedal while playing. It gives a characteristic "Wah Wah" voicing to the sound and has been popular since the psychedelic sounds of the late sixties.

One of the problems with inventing something new is that you have to give it a name – one that will give people at least a small handle on what it is all about. My idea is to take a graphics equaliser and allow its shape to be altered dynamically with a foot pedal. If you set up the equaliser's profile in a certain way, you can get an effect that sounds reminiscent of a Wah Wah pedal, but it is capable of many more effects – hence the Super part of the name.

Fortunately we have covered all the hardware needed for this in past issues, so if you made those projects there is only the software to add. I say *only*, but it's not exactly a trivial application.

Let's start with the hardware. You will need the graphics equaliser described in the July '97 issue of *Acorn User*. Next you will need some form of foot-operated pedal. Maplins sell a Footswell controller but it has a Log pot in it and, while you can use it, you will have better control if you replace it with a liner one.

Now you need a way for the computer to read the pot. Here there are many choices. You could use the A/D converter of an I/O podule like the old model B, or you could use the PC joystick interface in June '96 article. However, I chose to use the I²C bus described in the December '95 article as this was the easiest to use. If you choose something else then there are only two lines of code to alter in the software. It's in the Null procedure and has a comment above it. The block diagram of the setup is shown in Figure I. You don't need a bi-directional printer port but it might be a bit unresponsive on slower machines.

Now, onto the software. The idea is that the graphics equaliser profile can be dynamically changed, and in its simplest form this means going from one shape to another over the range of the pedal. The software stores a set of profiles and uses the one that corresponds to the current pedal reading. If that were the only task, it would be quite straightforward, however, we need to be able to set up these profiles in the first place as well as saving and loading them.

The application window has three sets of sliders. The two at the ends control the start and finish shapes, with the one in the middle showing the current shape being applied. As the pedal is moved this centre set will be updated, as well as the pedal value displayed under it. The software covers the range of 0 to 255 (surprise, surprise) but if your pedal won't go over the full range you can tailor the response to the range you do have.

Dragging one of the end sliders will alter the profile for that slider over the range given by the numbers under each slider set. You will see the results reflected in the overview windows under the sliders. Each slider has its own overview window showing the profile of that slider over the full range. In fact, there are two overview windows for each ➤

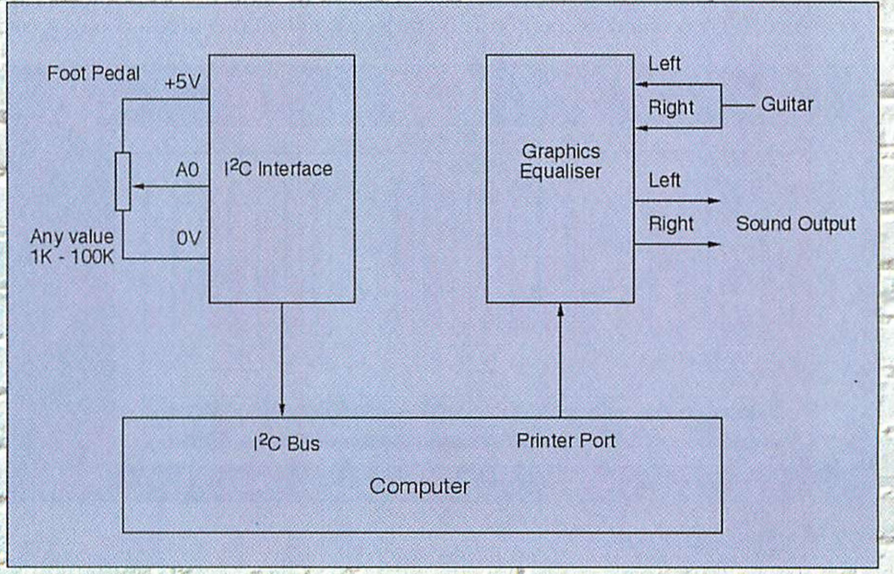


Figure I: The Block diagram of the Super Wah Wah

slider – one for the left channel and one for the right.

The sliders themselves only operate on one channel at a time, controlled by the left and right check boxes between the banks of sliders. Clicking on the menu button brings up some options for setting the channel you are not working on. "Same" makes an identical copy of the working channel, where as "Ch invert" makes an inverted copy. Similarly, "Ch reverse" makes a copy but reverses the order of the profiles. This allows you to create stereo effects from just a single channel.

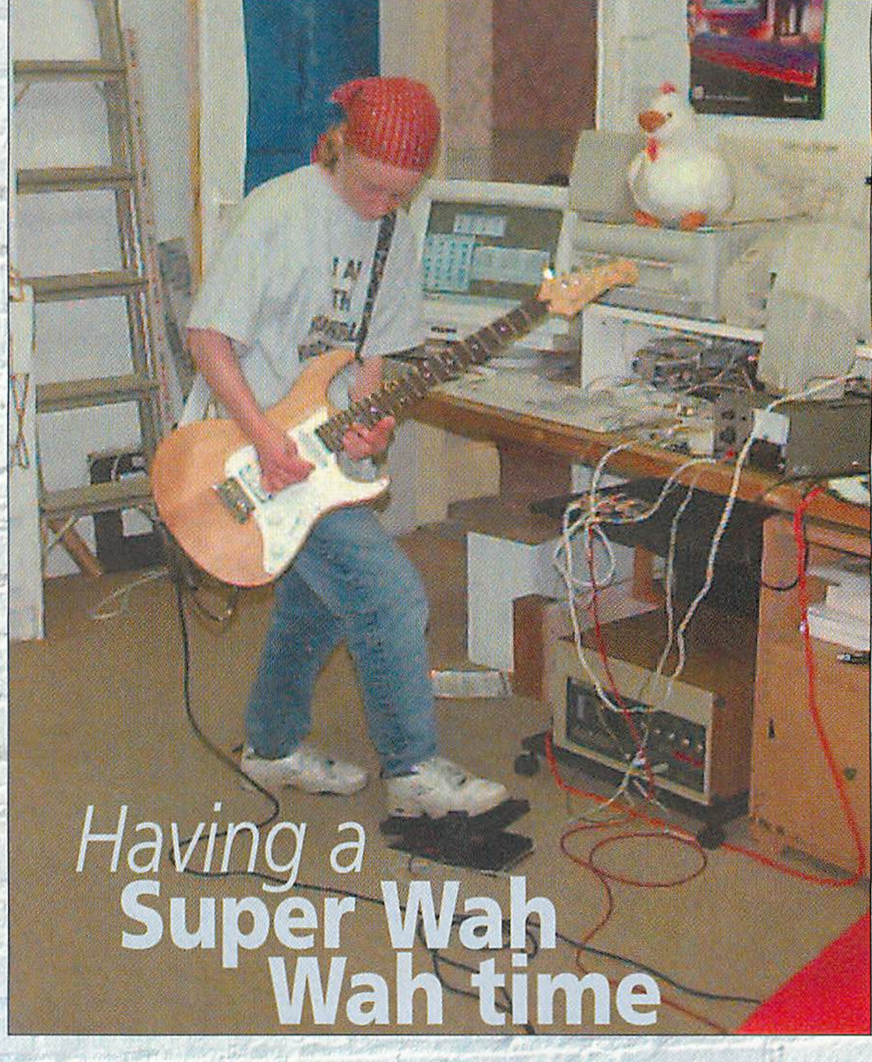
However, the software is capable of more than the cross fading of two profiles and any small section of the profile can be defined separately. To do this you need to specify the start and end points under the sliders. At its simplest, this can be done by typing in the number under the slider. To create complex profiles like the Wah Wah effect, you need to work in a number of sections where the start point for the next section is the end point of the last one.

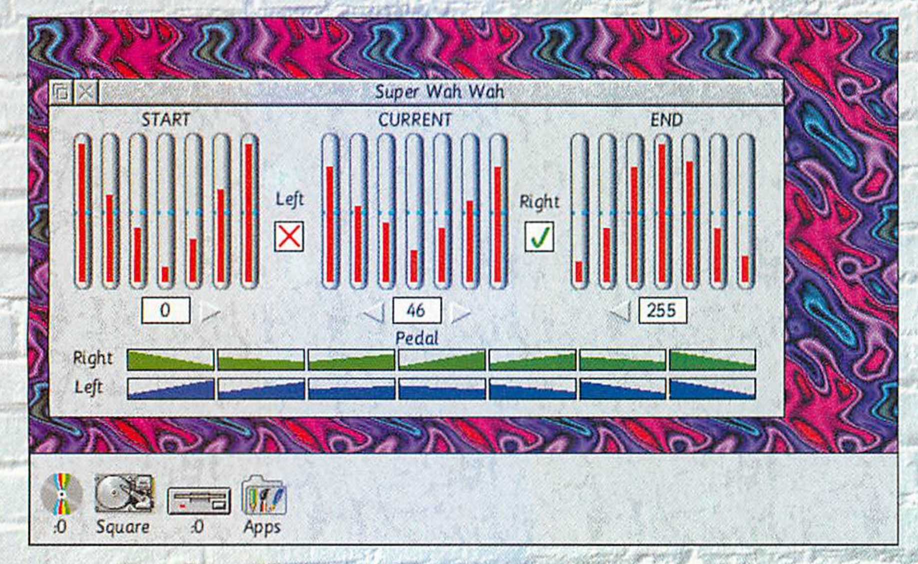
This is where the arrows by the side of the start and end points come in. Clicking on them will transfer the current set point to the other set of sliders. You might want to do this procedure with the pedal attached and define a point where an effect kicks in. In that case, all you need do is move the pedal to the correct point and click the arrows at the side of the pedal number to transfer the current pedal value to the start or end points. In this way you can program the profiles over the range of your pedal if you don't get the full 8-bit range with your setup.

Once you have created the profile, it can be saved in the normal fashion. To load in a predefined one, simply drop it on the window.

So, how does it work in practice? There is a very small click sound as the profile changes, but this is not audible when there is any sound going through the device. Also, I found the effect of a cut-in level was not as noticeable as a boost – this is denoted by the centre mark on each slider.

I did some measurements and found there was indeed the same amount of cut as boost – the range is +/- 12 dBs – so that must have something to do with the response of the ear. As to the sound, I set up the left channel as a Wah Wah with the right one as reverse sweep and Alec said, "it does my head in" – which must be some sort of recommendation.





An inverse Wah Wah gave what Alec called a basey Wah Wah, "it's good because most Wah Wahs are tinny". We are still in the throes of evaluating all it can do, for example it can be used as a straight volume control or to pan from left to right, some examples of these effects can be found on the cover disc.

There is some potential to make this a standalone unit using a PIC chip, however, there are problems, mainly concerned with memory. For a full range of profiles you need to be able to store 256 * 7 or 1.75 K and the PIC's 32 bytes looks a bit small. What would be needed is a I²C EEPROM to hold the profile. Also the display and input capabilities are somewhat limited, so it looks like the best solution would be to download one or more profiles from the computer. If I ever get round to it I will let you know. In the meantime have a Super Wah Wah. AU

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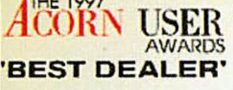
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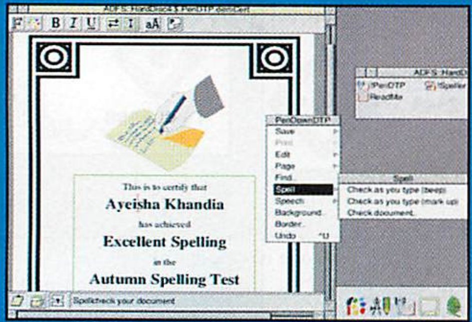
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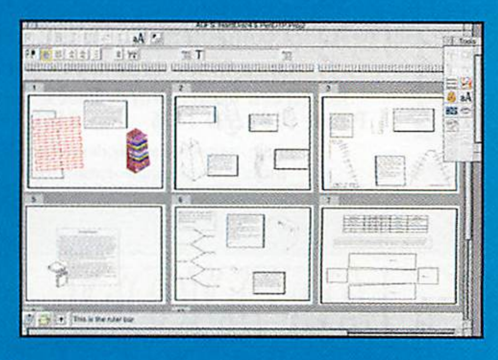
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* for more in depth details see the full review on pages 53-54 of the January '98 issue

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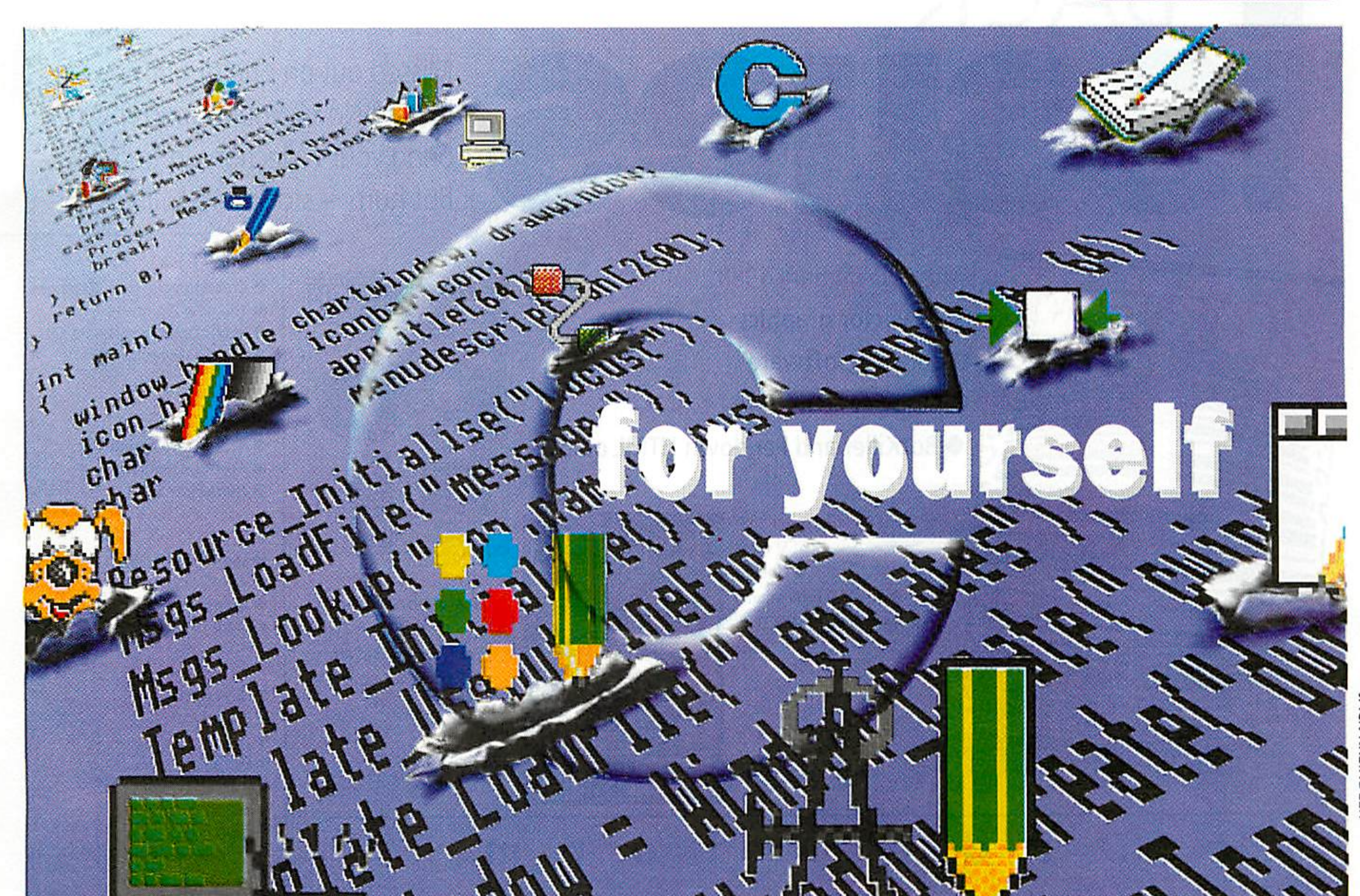
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JACK KREINDLER

Defining rectangles and catching errors – **Steve Mumford** continues his printing tutorial

Once you've worked your way through the message-passing minefield described last month, the next step is to open a file channel to the printer and tell the driver software where to place the material on the page. Several methods of opening files for output are available to us, but there are one or two things to remember.

You might be familiar with the use of the FILE structure, together with functions such as **fopen()** and **fclose()**, and these can be used to open files easily:

```
FILE *fptr;
fptr = fopen("printer:", "w+b");
```

Assuming the operation had been a success (**fptr** would be set to NULL if it hadn't), the variable **fptr** would point to a **FILE** structure containing various pertinent bits of information about the channel we'd opened. However, the **PDriver** SWI calls used to select and control print jobs require a simpler representation – the raw file handle can be obtained by interrogating the structure and reading the integer variable **__file** stored within:

```
job = fptr->__file;
```

Once you have the file handle, the **PDriver_SelectJob** SWI can be called, after storing the handle in R0 and putting a pointer to an identifying string of text in R1. This will suspend the currently active job, if one exists, and transfer that status to your own. It's at this point that plotting calls begin to be intercepted, so avoiding errors is essential – more on which later.

The next stage is to define an area of your document that you wish to print, along with its intended position on the paper, and this is done using the **PDriver_GiveRectangle** call. In a situation where the user wanted to print a simple letter, one rectangle would be defined, covering the entire sheet. However, it's perfectly possible to define several rectangles on one physical page, and this might be used when printing sheets of labels or reducing several pages to fit onto one sheet of paper.

On entry, R0 should hold a numeric identifier for the rectangle being defined – it's not important, but it might help you keep track if you've set up a whole stack of them. R1 points to a four-word block of memory holding the minimum and maximum *x* and *y* coordinates of the area of workspace to be plotted, stored in OS units – for instance, the following structure would hold the values in the correct order:

```
typedef struct
{
    int xmin, ymin, xmax, ymax;
} BBox;
_kernel_swi_regs in;
BBox box;
box.xmin = 0;
box.ymin = 0;
box.xmax = 0xffff;
box.ymax = 0xffff;
in.r[1] = (int) &box;
```

R2 points to another four-word block that contains a transformation matrix, allowing the user to scale and rotate a rectangle as it's printed. Due to the units used, in order to transfer a rectangle to the page without altering its size or orientation, the four words should contain the values 1<<16, 0, 0 and 1<<16 in that order. I'll go into this in more detail later.

R3 points to a two-word block containing the *x* and *y* millipoint offsets of the rectangle you wish to print from the bottom left corner of the paper – in simple cases, these will both be zero. Finally, R4 holds the background colour of the rectangle, stored as red, green and blue values from 0 to 255, put together in the hexadecimal form &BBGGRR00.

That's the hard work out of the way; from here it's very similar to the standard WIMP redrawing loop we know and love. However, before I fill in the details, it's important that I reveal one of the pitfalls of this printing technique.

Error trapping

The process of sending graphical data to the printer is somewhat fragile, and error cascades are easily created. With this in mind, there are several 'escape' functions that allow you to kill the print job in its tracks – however, we need to know how to catch those errors in the first place.

Acorn's standard **kernel.h** header file declares a structure with the name **_kernel_oserror**, which can be used to collect and hold information from a SWI call that's returned an error. The structure has space for an integer error number, and a 252-byte character array for the actual error message, and it might be used in the following manner:

```
_kernel_oserror *ERR = NULL;
ERR = _kernel_swi(PDriver_DrawPage,
&in, &out);
if (ERR != NULL) {
/* An error has occurred - deal with
it here */
}
```

The **_kernel_swi()** function will usually return the value **NULL** if all has proceeded according to plan; if this isn't the case, something has gone wrong and it's time to take evasive action. Calls exist to allow the programmer to abort or cancel print jobs, and I'll provide you with more information next month. AU

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Credit where credit's due

Well-known as a constant critic, I was relieved to find something positive for a change. The *Acorn User* Collectors CD-ROM was absolutely brilliant and I look forward to the next one. It's a pity they are released so rarely, though I can understand why. Here are some comments from my family with regards to this years CD-ROM:

Marvellous, an excellent CD with something for everyone, whatever your interests.

Well-organised.

It certainly kept me busy. I haven't had so much fun browsing through a CD-ROM since last years!

William Simpson
Lincoln

We generally don't like to print self-congratulatory letters... but sometimes we can't resist, Stephen Scott should certainly be congratulated for an excellent piece of work.

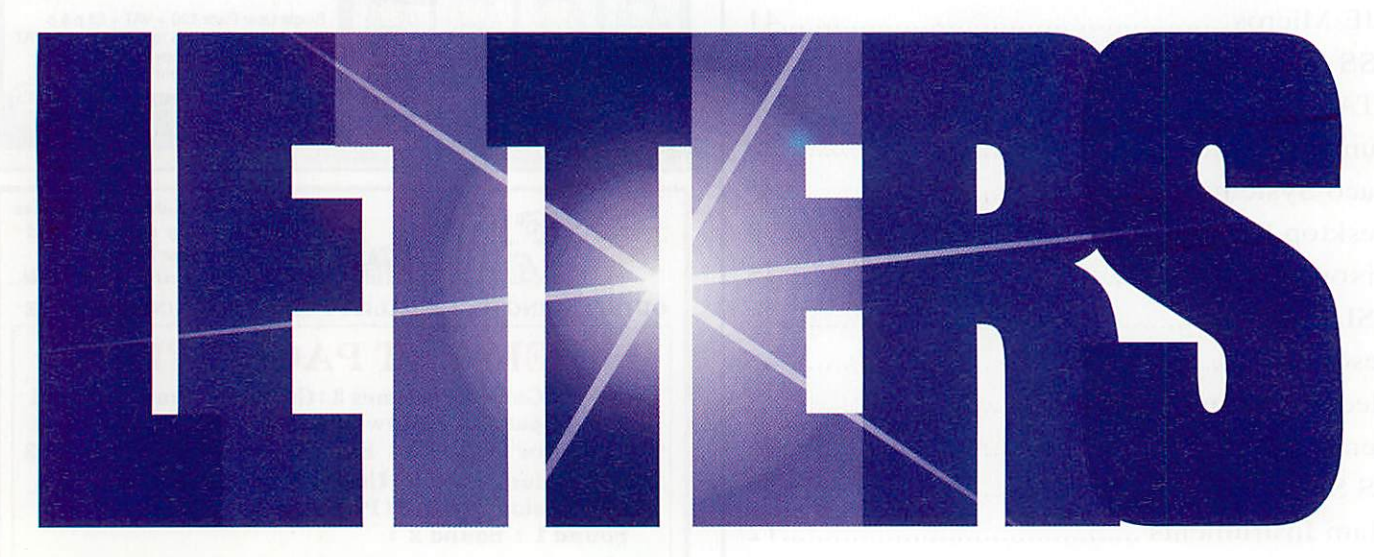
Pat on the back

It seems appropriate, having recently read the review of *Spex+* by Geoff Preston in the Christmas edition of your magazine, to draw to the attention of your readers the excellent support I have received from this company regarding the above piece of software.

Having been using this software on a standalone machine for two years I wished to install it on a network of computers. The original version would not run on the network and on making a telephone enquiry to the company they immediately sent me a new version for use on my network. Further assistance was then willing and *instantly* given to me, both by telephone and fax to enable me to get this program running.

What a welcome change to have a company that provides help to its customers in such a prompt, helpful manner, and free of charge. The same cannot be said for some of the larger PC software houses I have encountered, who are not very helpful, treating you as if you should not be bothering them with problems and then charge you for this privilege.

P Sawer
Head of Technology
Eskdale School, Whitby



Working from home

Professionally I'm an (IBM) AS/400 programmer, but at home I use a Risc PC 600.

Because of a RAM upgrade, I am now able to run BOSaNOVA Access for Windows under Windows 3.1 on the 486 side of my Risc PC. The 486 card enables me to phone into the company's computer and emulates a dumb terminal, allowing me to work from home.

One of the benefits of this arrangement is the ability to grab screenshots from the AS/400 which I can include in documentation created using *Impression*. I would be interested to know if Acorns have been connected to other machines in a similar way.

In the December issue of *Acorn User*, I read about the Risc PC 2 and its all-new design. When I bought my Risc PC 600, I was led to believe it was more future-proof than the old A3000s, 7000s etc. The first blow came with StrongARM. I could upgrade the CPU, but it seemed that a lot of existing software wouldn't work on it. Now the Risc PC 2 is almost here, will I have to buy another machine in order to benefit from future processor upgrades?

R. W. Jeffs
Wimbourne, Dorset

Unfortunately when the Risc PC was designed no one realised just how the technology would change. The design was built on an assumption of a slow but steady increase in power using standard processor technology. Acorn had no idea Digital would produce the StrongARM, completely destroying their carefully laid plans.

At least you were able to add a StrongARM to your existing machine.

Confused? You will be...

We have recently come across a program called *Confuser* which has been deliberately written to produce false virus reports from *Killer* and other virus detection programs. This has been written by Jon Ripley of Stryker Software ostensibly to 'confuse the !Killer application'.

He also states that, 'The aim of this is to show that virus killers are not always correct and sometimes make mistakes...'

Now this is clearly an absurd thing to try to do. If this program is put onto computers or copied around in schools people are going to think they have got an infection when they haven't.

As I'm sure you're aware we have never claimed that *Killer* can never make mistakes, although we are very quick to overcome false alarms when they are pointed out to us. I think it might be useful for you to warn people about this program in your magazine.

Here is the !Help file from the application:

Killer !Confuser... (Freeware) (C) 1997 Jon Ripley version 0.00 Stryker Software Released 12 Nov 1997



This application does nothing aside from confuse the !Killer application. When this application is seen by the filer when VProtect is loaded it will say that a virus is present.

The aim of this is to show that virus killers are not always correct and sometimes make mistakes...

This application may be distributed freely as long as no charge is made. You may not change any part of this application and the files must remain unchanged if you pass this application on to anyone.

If you receive a copy of this which does contain a real virus please do not blame me. This application as written is completely virus free. I accept that there are people out there who will deliberately infect this application and pass it on.

Under no circumstances do I condone the writing of viruses and worms for purposes other than personal gratification where these programs are NOT distributed to others for malicious purposes.

You can be sure that future versions of !Killer will recognise, and deal with, !Confuser.

Jim Daniels
(and all at Pineapple Software)

We're getting there

In the January 1998 edition of *PC Magazine*, the winner of the Technical Innovation Awards (1997) is described as follows:

ATOM technology

It's easy to be mesmerised by the sheer speed that phone lines will achieve from next year when asynchronous digital subscriber loop (ADSL) technology starts testing, with BT and other cable subscribers able to get over 1Mbps down ordinary voice lines, and up to 6Mbps in some cases. It's an amazing achievement.

The really impressive technology leap, however, isn't the raw speed, but the connection type. With the release of ATML's ARM-based ATM chip, asynchronous transfer mode finally reaches down to the desktop and the home network.

Dialling, modem carriers, analogue services, Web presence: Control of all of them will pass into the hands of the users. And all based on the architecture of one of the world's most under-rated processor architectures – the Acorn RISC machine.

You can find this article on page 142.

Andrew Pontzen
andrew@unicarrot.demon.co.uk

Air your views

If there's something you want to 'get off your chest' or you have some interesting information for your fellow *Acorn User* readers, then write in to:

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Major players

With reference to David Lally's letter in the January 1998 issue of *Acorn User*, I wrote to Tony Blair back in October, just before Bill Gates' visit took place, mentioning the fact that Acorn/Xemplar are major players in the Education field, and also that Acorn were British and shouldn't we support the British economy?

About a month afterwards, I received letters from Downing Street and from the Dept of Education and Employment. Here's what they had to say:

"I note your concerns that Microsoft could monopolise the supply of equipment software and services to schools. We take these concerns seriously and will ensure that dominant companies do not unfairly exploit the opportunities presented by the Government's proposals to implement a National Grid for Learning.

"The Grid will be an Internet-based resource linking together schools and colleges with libraries, museums, galleries and eventually homes and providing access to a range of high quality teaching and learning materials. It will help to raise standards across the curriculum, including new targets for literacy and numeracy by providing high quality software, content and services which are relevant and differentiated according to needs.

"The Government recognises the value of forging strong links between industry and the education service. It is very aware of the high quality of British products in this field, and is keen to involve British companies in developing and rolling out its plans for the Grid. It is currently talking to a range of companies about the important role they will play, and, dependent on the outcomes of consultation, proposes to issue a Challenge to Industry which will be open to all."

Richard Sage
Flintshire



…ondence Secretary

13 November 1997

…has asked me to thank you for your …ateful to have your views and will take … say.

…t your letter be passed to the … and Employment who has …t so that they, too, are aware of your …ny comments they may have direct.

…rs sincerely

…AMPSON

DfEE

Department for Education and Employ…

Caxton House
6–12 Tothill Street
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Telephone 0171 273 3000
Fax 0171 273 5124

Mr Richard Sage
Wortley House
Church Road
Northop
Flintshire
CH7 6BS

Direct Line 0171 273 4985
Local Fax 0171 273 4991

4 December 1997

Dear Mr Sage

Thank you for your letter of 6 October to The Prime Minister regarding the use of the information and communications technology (ICT) in education. This has been passed to me for reply and I am sorry for the delay in doing so.

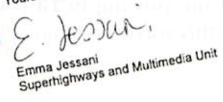
I note your concerns that Microsoft could monopolise the supply of equipment software and services to schools. We take these concerns seriously and will ensure that dominant companies do not unfairly exploit the opportunities presented by the Government's proposals to implement a National Grid for Learning.

The Grid will be an Internet-based resource linking together schools and colleges with libraries, museums, galleries and eventually homes and providing access to a range of high quality teaching and learning materials. It will help to raise standards across the curriculum, including new targets for literacy and numeracy by providing high quality software, content and services which are relevant and differentiated according to needs.

The Government recognises the value of forging strong links between industry and the education service. It is very aware of the high quality of British products in this field, and is keen to involve British companies in developing and rolling out its plans for the Grid. It is currently talking to a range of companies about the important role that they will play, and, dependant on the outcomes of consultation, proposes to issue a Challenge to industry which will be open to all.

I am enclosing, for your information, a copy of the National Grid for Learning consultation document 'Connecting the Learning Society'. This paper seeks views from industry, the education service and other interested parties on the Government's proposals for implementing the Grid.

Yours sincerely



Emma Jessani
Superhighways and Multimedia Unit





John Ballance and Jack Lillingston

Speculation over the future of the Acorn market amuses me. Why? Because so many of the people I interview run extremely healthy businesses where the phone is continually ringing. They seem to be expanding in front of my very eyes. The latest is Castle Technology who are about to occupy even more of the industrial estate where they are based.

Castle Technology is run by Jack Lillingston and John Ballance. On first meeting, Jack and John look like they should be members of the *X-Files'* The Lone Gunman. Jack explains: 'I have a headset wired into a mobile phone which means we can meander everywhere. It prevents you getting a crick in the neck.'

'What it particularly means,' adds John, 'is that you are running hands-free, while at the same time being contactable. It is very important, I think, to be accessible. There is nothing worse than phoning up and finding someone at the end of the phone not knowing anything.

'We actually have someone who is dedicated to front-line support. Support is needed because in both pre-sales as well as after-sales, no matter how hard one tries, the complexity of modern stuff is far too much for some people. We strongly believe that the service should be free and friendly. Some do not believe this, but we do strive as hard as we can to reduce the need for support.'

Jack and John's philosophy for business is to have tight control over the life cycle costs of products, while being as efficient as possible. They have an efficient warehousing system which is run using barcodes and Acorn machines. This enables them to trace every product and its components quickly.

Jack adds: 'I do not think anyone else in the industry does this, our direct competitors do not appear to be in such tight control. It is what we bring to the market. Most of the other competitors in the SCSI market sub-contract, so the person with knowledge is often not contactable.'

Castle are strictly an Acorn company, whose clients are 25 per cent small business or home users and 75 per cent schools. The latter they feel are under-supported.

'What Acorn have done over the last few years is to make themselves much more accountable throughout their business activities. This is good, because if people think Xemplar is a bad thing it should be quantifiable. If it is a bad thing then it should be blatantly obvious.'

> **I was becoming more and more a desk jockey**

Jack does not have the background you expect for someone who sells Acorn hardware – but actually in this market almost no-one does.

'I was involved in the farming industry until 1987, growing apples and pears. I always used Acorn computers and it was my hobby. In '87 when the opportunity came up to make it something more than just a hobby I took it.

'Basically the EEC wanted the French to grow apples for the EEC; and because the French are a strong political force this went ahead, hitting fruit growing in East Anglia on the head. So this was a preferable line of business to growing apples.'

John, on the other hand, comes from what might be seen as a more traditional background. 'I went via the usual university, electronics degree, then started work at BT research labs in 1975, looking at what weather does to signals from satellites.

'I met the usual problem – you gradually go up in an organisation and get to a point where you spend all the time worrying about the money to do things or asking other people to do the work for you. I am a hands-on sort of person, but I was becoming more and more a 'desk jockey'. Shortly after the A300 series was launched, I acquired one. I thought if I was going do to something with a computer then it had better not be like the PCs and Macs I had at work, so there was no conflict of interest with my employers.

'By this time I had two children and so funds were less. I was not able to go out and buy hard discs so I decided to design a hard disc interface. One day I got a phone call for someone in Netherlands who said: *I hear you have a SCSI interface – can I buy one please because Acorn says their interface is not going to be ready for some while yet?*.'

'I said yes, but I was not in a position to start manufacturing and supporting things for the market. I was not sure how I was going to get it made. He mentioned that he knew this fellow in Newcastle who might be interested in making it. This fellow in Newcastle said that he would like to but did not really want to market it. However, he did know this fellow who was not very far away from me – Jack.'

And so it was that Jack and John, who originally lived just 20 miles from each other, met via the Netherlands and Newcastle.

Jill Regan AU

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Picture by Walter Briggs using Studio24Pro

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2.5Gb IDE	★ £145.00
3.2Gb IDE	★ £179.00
4.3Gb IDE (Fireball ST)	★ £209.00
4.3Gb IDE (Cyclone 5.25")	£199.00

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x4 IDE Expansion card	£69.00

Bare SCSI harddrives

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3.2Gb SCSI (Quantum ST)	★ £249.00
4.2Gb SCSI	★ £305.00

ZIP parallel port drives

Iomega parallel port ZIP drive	£159.00
Iomega SCSI internal ZIP	£129.00
100Mb ZIP cartridge	£13.50
Pack of 6 Zip Cartridges	£75.00

Studio24Pro



'Many Acorn User front covers have been created from scratch using this program alone, concrete proof of the power of this creative tool'- *Acorn User Mar96*

Now just ★ £99.00 ★

Users note FREE update v2.16 is now available.

PAL TV Coders



We have a range of PAL TV coders available which allow the output of any Acorn Computer to be displayed on a normal TV or recorded onto a video recorder. All models have S-VHS as well as standard video outputs. Both work in VGA and SVGA screen modes. Please ask for more details.

VGA Converter PAL Coder	£159.00
AVK/3 PAL Coder	£259.00
Monitor adapter 9-15pin	£4.11
Monitor adapter 15-9 pin	£4.11

Pineapples Virus Protection Scheme has been running for over five years and is still being updated with new viruses on a regular basis. New software versions are sent out to members every three months and the total number of viruses which can be removed is over 100.

Joining fee just £28.20

Inexpensive multi-user licences

'If you're interested in virus protection, join the Pineapple virus protection scheme and buy Killer. Accept no alternative - 'Acorn User Feb 96

As an Acorn Centre of Technology Pineapple Software can help you with ALL your Acorn computer related problems.

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Canon BJC250	£149.00
Canon BJC620 - colour	£229.00
Canon BJC4300	£198.00
Canon BJC4550 (A3)	£287.00
Canon BJC5500 (A2)	£649.00
Epson Stylus 200 mono	£139.00
Epson Stylus 200 colour	£179.00
Epson Stylus Colour 400	★ £179.00
Epson Stylus Colour 600	★ £239.00
Epson Stylus Colour 800	★ £319.00
Epson Stylus Colour 1520 (A3)	£729.00
HP Deskjet 690C	£259.00
HP Deskjet 870C	£369.00
HP Laserjet 6L	£359.00

Other Items

Artworks video tutorial	★ £14.99
Casio QV11 Digital Camera	£376.00
Casio QV100 Digital Camera	£528.00
Sibelius Junior v3.0	£55.00
Sibelius 6 software v3.5	£115.00
Sibelius 7 Student v3.5	£459.00
Sibelius 7 software v3.5	£940.00
Studio24 version 1	£35.00
Acorn Netstation (Ethernet)	£467.00
Acorn Netstation (Modem)	£467.00
A7000 upgrade to A7000+	£249.00

We have many items in stock which are not shown in this advert. Please ask for anything you require which may not be shown. We also undertake repairs and upgrades to all Acorn computer models. Collection can be arranged if necessary.

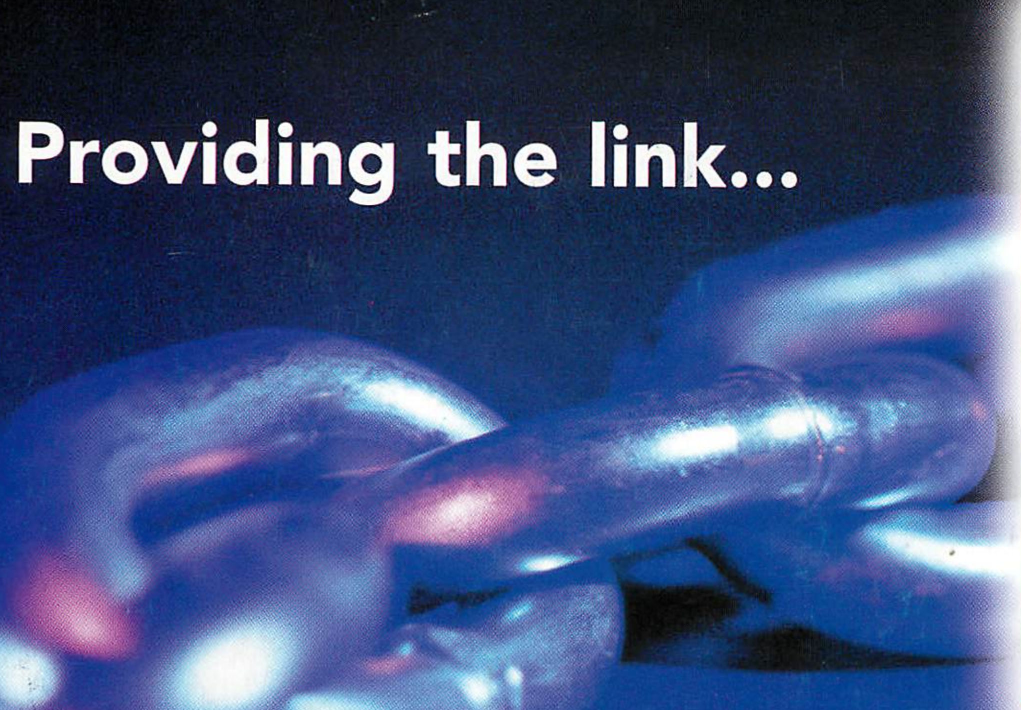
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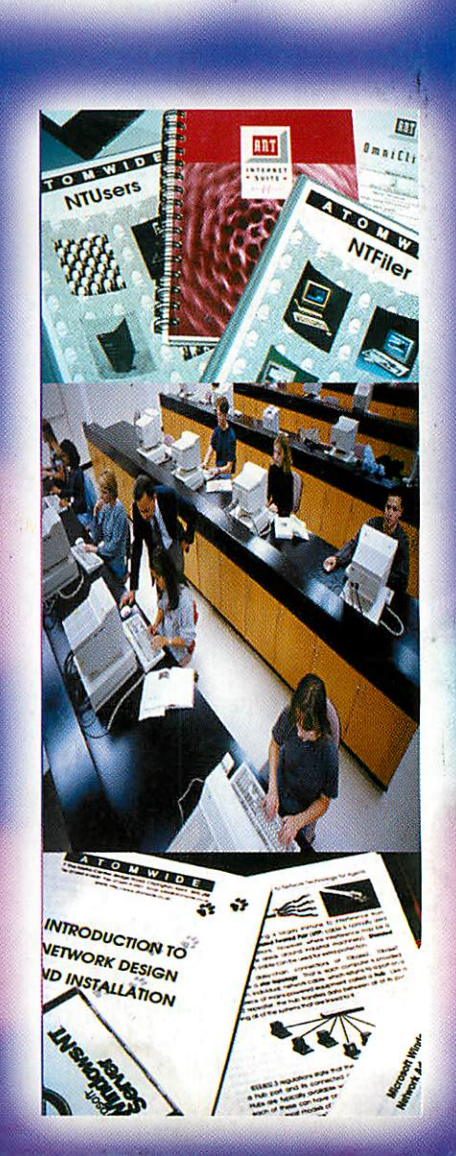
Terms:- All prices *include* 17.5% vat. Carriage £15 on computer systems. £5 on all other hardware. Other items free. Phone for quote outside UK.Official orders, cheques and all major credit cards accepted at no extra charge.

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